

CONFIDENTIAL

# **REPORT OF THE COMMITTEE ON THIRD LEVEL AIR SERVICES**



ALONG WITH THE NOTE  
BY THE  
CHAIRMAN

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## CHAPTER - 1

### NOTE BY CHAIRMAN OF THE COMMITTEE ON THIRD LEVEL AIR SERVICES

#### Presentation of the Report and a Summary of its Findings

(along with the method of approach  
and the measure of agreement)

The Committee on Third Level Air Services was appointed by order of the Minister of Tourism and Civil Aviation, communicated to the members of the Committee on 19th April 1978. A copy of this communication is attached at Appendix 1.1 to this Chapter, which also indicates the Terms of Reference of the Committee.

#### COMPOSITION OF THE COMMITTEE:

2. In accordance with the directions of the Minister, the Committee was composed as follows:-

Shri B. S. Gidwani Director General of Civil Aviation	 ... Chairman
Miss A. Mehta Additional Director General (Tourism)	... Member
Shri A. K. Sarkar Deputy Director General of Civil Aviation	... Member
Shri G. D. Mathur Deputy Managing Director, Indian Airlines	... Member
Shri J. K. Choudhury Planning Manager, Indian Airlines	... Member
Shri S. Ekambaram Deputy Secretary Ministry of Tourism & Civil Aviation	... Member

3. Subsequently, recognising that establishment and growth of Third Level air service would have a positive influence on a systematic programme of manufacture of indigenous aircraft in the country, we co-opted a representative of Hindustan Aeronautics Limited (Dr. S. M. Ramachandra, Deputy Chief Design Engineer, HAL) to be associated with the Committee's deliberations. Besides, a representative of Air-India (Major S. G. Srinivasan, Regional Director) was also associated.

4. While the Report speaks for itself and deals exhaustively with certain aspects, the subsequent Paragraphs in this Chapter are intended to summarise some of the main decisions taken by the Committee. An attempt has also been made to explain the method of our approach and the measure of agreement that we have reached in respect of those decisions.

(I) The main Conclusion of the Committee - and the Majority Proposal

5. The main conclusion which the Committee has unanimously reached is that it is not only practicable but also essential to establish Third Level Air Services in India on an immediate basis and, to begin with, at least 50 new population centres (which are specified in the Report) should be served in the very first phase itself.

The Committee is also satisfied that the establishment of Third Level Air Services will eventually be economically viable and will not impose any burden on the scarce financial resources of either the Central Government or the States.

6. The Chairman of the Committee and the majority of its members have also evolved a specific proposal (see Chapter XI) which will ensure that neither initially nor at any subsequent stages will the Government have any responsibility or liability for meeting any expenditure for or on behalf of the Third Level Air Services and that these services will, throughout, remain self-sustaining. Briefly stated, the majority proposal simply involves raising funds by establishment of Embarkation Charges within the framework of Aircraft Rules at the rate of 10 % of the fare paid by domestic passengers on Indian Airlines and ploughing back most of this amount back to Indian Airlines for Third Level Air Services to be operated through a subsidiary organisation. By this means, an amount of about Rs. 143 crores can be collected over a period of 10 years, enough for the present and future needs of Third Level air services. It has to be recognised that nearly 98%\* of Indian Airlines passengers travel on 'expense account' or company or government account, and the Chairman's view supported by the majority in the Committee was that there is merit in accepting the principle that the 'rich must pay for themselves and to some extent, for others'. We have of course noted the objections of the members from Indian Airlines that these charges would restrict their present and future flexibility for increasing fares. We however, feel that inasmuch as similar charges are a regular feature in respect of international passengers on Air-India and foreign airlines, there is rationale for imposing them on domestic passengers in respect of the twin objective of establishing Third Level Air Services and improving our aerodromes and navigational facilities. Besides in so far as the question of flexibility for increasing fares is concerned, our view is that any such increase in fares has to be justified independently and separately on its own merits, quite apart from the question of Embarkation charges.

In any case, the proposal by the Chairman of the Committee and the majority emanates from the consideration that there are competing claims for limited funds that Government has. Although air transport has an ever-increasing role to play in revitalising economic activity, it is unlikely that Third Level air services would receive priority over food, agriculture, health, etc. to permit demands to be made on the limited resources of the Government to an extent sufficient to meet their requirement. In a country where the basic wants of people - for food, shelter, clothing and employment - have yet to be met, it would be odd to suggest that Government should allocate its scarce funds for establishment of air

services. It is necessary therefore to locate alternative sources of these funds. The Chairman and the majority of the Committee were, therefore, convinced that in order not to burden the Government, the source of funds for these activities should primarily emanate from affluent users of air transport and that the most appropriate method of financing the project would be by way of introducing Embarkation Charges. Side by side with it, the proposal by the Chairman of the Committee and supported by the majority also envisages that the Government will be fully absolved of all expenditure needed in this regard for aerodrome development, provision of communication facilities and other related infrastructural improvements of ground and air navigational services, needed for Third Level Air Services. Besides, by acceptance of this proposal, sufficient funds would be available for continuous growth of Third Level air services, far beyond the immediate goal of connecting 50 new population centres, since the Committee is convinced that keeping in view the size of India's land area and its outlying territories as also economic, social and related factors, its present recommendation of serving 50 new centres represents no more than a modest beginning.

It must be clarified that this majority proposal, while it does not place any financial burden on public funds, ensures that Government will have full control over policies and goals in respect of Third Level Air Services, since the Chairman of the Committee and the majority of its members are convinced that the task of setting goals and policies cannot be left merely to those who operate the Third Level Air Services.

The Chairman of the Committee and the majority do not agree that the proposal to raise funds by means of Embarkation Charges is unorthodox, considering that the international passengers embarking in India are subject to such charges and also to the travel tax. In any case, ultra orthodox methods have not produced for us in the decades gone by since independence and nationalisation, a network of air services or aerodromes and related facilities which a country of India's size and status should have.

An apprehension was expressed that while Government might not disapprove the system of Embarkation Charges, it might wish to divert the funds arising therefrom into General funds and not for the benefit of the Third Level Air Services. The Committee as a whole did not share this apprehension - which in any case had been tentatively voiced - and also felt that such diversion of funds would be unwise in the interests of the country.

7. Irrespective of whether the proposal for financing the Third Level Air Services as evolved by the Chairman of the Committee and the majority of its members is accepted, rejected or modified, the Committee remains unanimous on the need to establish Third Level Air Services on an immediate basis.

(II) Principal objective of the Committee - economic viability

8. The Committee was unanimously of the view that we should set up, economically, a strong and viable system of Third Level Air Services which should adequately respond to consumer demand, enable long-term market growth and eventually permit profitable operation

by efficient carriers. The Committee recognised that even far beyond the considerations of economic viability, there are strong factors which emphasise the need for establishment and development of Third Level Air Services - and much will be said later in this Report about those factors. Even so, the Committee felt that factors which undercut the economic viability of such air services will not benefit the travelling public or the shippers and will eventually defeat the programme of development of Third Level Air Services.

The Committee therefore concluded that the Third Level Air Service system should be so established as to respond efficiently to market conditions and requirements and that it should be provided at such population centres where substantial potential for air transportation exists. In short, the strict test of economic viability must be applied.

It is after having applied this test that the Committee has recommended unanimously that 50 new population centres qualify for establishment of Third Level Air Services.

(III) Main consideration before the Committee - -  
Present unsatisfactory position of the  
domestic network

9. The Committee noted the unfortunate fact that although during the period between Independence (1947) and Nationalisation (1953), the domestic airlines of India were serving 55 points in India, the present position is that Indian Airlines is serving a total of 61 points on its domestic network.

Thus, in the quarter century since Nationalisation, all we have achieved is the net gain of additional 6 points on the domestic network.

Few countries, if any, of the size of India can be charged with such slow coverage of the domestic network.

10. This unparalleled stagnation is by no means the fault of Indian Airlines. Indian Airlines has a proud and enviable record of achievement. It provides a safe, efficient air transportation system at as low a cost as is economically justified. It has responded effectively to technological changes and is using the most modern aircraft as far as possible. It has increased its capacity and frequencies of services. By any standard, it must be regarded as a successful airline, which apart from its record of safety and efficiency, is also able to earn profits despite mounting burdens of excessive fuel costs, sales taxes, landing and navigational charges.

Still, the fact remains that Indian Airlines' concentration has been on an intensive network, covering a limited number of points and that there has been no worthwhile effort towards an extension of that network.

11. This unfortunate state of affairs has arisen obviously due to an overemphasis and somewhat total commitment to the guideline provided for in Section 9 of the Air Corporation Act of 1953 whereby the airline is to act "so far as may be" on business principles - an

instruction that has been construed to direct the airline to concentrate on commercial routes with proven existing traffic or immediate potential traffic.

Somehow, the foregoing guideline has over-shadowed an imperative - the imperative provided for in Section 7(2)(j) read with Section 7(1) which directed the airline to "take such steps as are calculated to extend the air transport services, including the development of feeder services" - a clear cut instruction directing the airline to open up new routes, cater to new markets and to bring more communities into the stream of air commerce, thereby extending the air transportation network.

12. Apart from the consideration that the fleet of Indian Airlines has been heavily weighted with aircraft types that are not well suited to economic operation on minor air routes and small aerodromes, the fact also remains that in order to get a better hearing from the Government and the necessary sanctions from the Finance and the Planning Commission, the policy in respect of establishing the route network has been such that the guideline in Section 9 of the Act has prevailed, in a large measure, over the imperative of Section 7(2)(j) and accordingly no emphasis has been given to development of feeder and regional routes, since the possibility of their being immediately remunerative was regarded as doubtful.

13. It is not as if all the routes presently served by Indian Airlines are remunerative. Far from it, many of them, judged individually without reference to overall utilisation and other factors of inter-relationship, are losing routes. However, they are there not on account of any conscious adherence to the imperative of Section 7(2)(j) but due to other considerations. The original network was inherited by Indian Airlines from the predecessor companies and except for modest variations, by and large, the old network pattern has been essentially maintained. The few new points that have been added owe their existence to the fact that they were expected to be immediately remunerative without the tedious need to experiment or because there were certain important pressures, not altogether connected with commercial aspects.

Thus, it is that the evolution of the route network has been painfully slow and from 55 points served prior to Nationalisation, the Indian Airlines network today serves 61 points - an addition of 6 points in the period of two and a half decades. Clearly this is due also to disregard of Section 7(1) of the Air Corporation Act which suggests that the Corporation is to be regarded as a public utility with the obligation to secure that air transport services are developed to the best advantage.

14. It is not intended to locate any blame for this slow process with Indian Airlines. The airline has had its compulsions in appearing before the Finance, Planning Commission and other bodies which often have to base their judgements on financial aspects and profitability. Government directors on the airline Board have also almost invariably adopted the financial

yardstick. There has all along been limited, if any recognition of the fact that the guideline of Section 9 of the Act - 'to act as far as may be on business principles' - is subject and subordinate to the principles of Section 7, and not the other way round. In any case, an airline by its very nature and particularly when it is monopolistic, would like to operate for immediate profit as far as possible, and cannot be expected to set for itself the tasks and goals which Section 7 of the Act envisaged, and it was therefore open to Government to make wider use of its powers under Section 34(2). Government, on the other hand, while it has given attention, after nationalisation, to efficiency of the enterprise, economic self-reliance, profitability, improvements in capacity and frequency, has not been so attentive to extension of the network to widen the aerial scope of mobility which would have achieved the goals envisaged in Section 7 of the Act.

Be that as it may, what is clearly necessary is to cure the present acute stagnation of the aerial network. It is with this in view that the Committee has suggested that 50 new population centres must be added to the aerial network, in the first phase itself.

(IV) The need and rationale for Third Level Air Services

15. The preceding paragraphs spoke of the stagnating aerial network of Indian Airlines and of the need to extend and augment it by adding 50 population centres in the first phase and many more in the subsequent phases.

The reasons for such extension of the network are obvious and have been briefly touched upon in the Report. However we should clarify that it is not merely to seek an academic adherence to the provisions of Section 7(1) and 7(2)(j) of the Air Corporation Act, that a large scale extension of the route network is rendered necessary. The fact is that the reasons and the rationale which motivated these Sections in the 1953 Act have become so pronounced - even paramount - that the extension of the domestic air network (and establishment of the Third Level air services to serve such tended network) has become an inescapable necessity.

"Rising expectations" must be regarded as a continuous process in a developing society - and throughout, this process manifests itself in every phase of development. Nevertheless, the extent and intensity of these expectations, ever since the new Government came into power, has reached such proportions that it would be unwise to ignore them. Keeping this aspect in view, it would seem that unless the domestic aerial network is extended and third level air services are established, the charge will often be heard that Indian Airlines represents an "Urban Phenomenon".

That Indian Airlines lives upto the world airline standard is a matter of some significance for the professionals. As for the rest, they would naturally like to see that the domestic network is extended beyond the present thresholds so as to bring the benefits of air transportation to many more urban and rural communities. Apart from the substantial

economic benefits that such extension of air transportation system will undoubtedly usher for these communities, one must take into account the psychological factor. Transport improvements do achieve a sense of national purpose through demonstrational methods. There was a time when even the building of a road for a village came to be regarded as a symbolic act of some importance and served to alter the attitude of the villagers towards the Government, giving them a greater sense of identity. What was true of the village roads then, applies in modern times to the establishment of air services, particularly in the context of the emerging hopes that there is to be a fundamental shift in policy which would call for greater response and sensitiveness to the needs of smaller communities.

Neither in this Chapter nor in the Report itself, can we attempt to explain all the benefits that will flow from the establishment of Third Level Air Services. Limitations of time and space would not permit such an attempt. But it is clear that the hopes with which the nationalisation of air transport services was ushered in, have not been met. It cannot be said that the air transportation system in India has become an integral part of India's economic and social life. Nor can it be said to have contributed to national integration by opening up new areas.

An efficient and extensive air transportation system has always been recognised as a vital factor in building up and strengthening political institutions and certainly it helps in bringing about economic and social integration. It is for this reason that various countries refer to 'political cohesion' as an objective of air transport policy and regard an air transportation system as a principal means of achieving national integration and unity.

16. It is not a question only of regional prestige which calls for the need to establish Third Level air services. The fact is that "isolation perpetuates poverty". Access is indispensable to any economic activity. If we have to redress the unevenness of economic development and locate economic activity more evenly, obviously there is need to raise the input of entrepreneurs and enterprises into neglected regions of the country and also to increase the proportion of output coming from those regions. Otherwise it would not be easy to achieve the goal of industrial dispersion and regional economic development. Air Transport in India can do far more than it has done so far to serve development programmes. It can carry industrialists and businessmen quickly to areas presently starved of an airlink and also doctor medical aid, government officials and others. It has at times been said that Time is not of essence in a developing country and that where there is extensive unemployment or under-employment the time savings merely make the situation worse. The reverse is true. The time savings for entrepreneurs and industrialists who wish to develop new markets and industries in the region are of essence. Stretching the supply of technicians, movement of raw materials coupled with the need to discover and exploit natural resources, is yet another example. In fact, even in respect of shipment of goods time saving is more valuable in the less developed regions than in the advanced regions, for the simple reason that cargo tied up in transit

is capital and is therefore of particular importance where capital is in short supply. Delay can immobilise a small scale industry far more. Also, it is clear that in opening up new markets and expanding the existing markets, time saving should be regarded as essential to the process of production and distribution, apart from the fact that transportation of commodities previously sold locally but now transported to markets where a better price can be obtained, will lead to definite economic advantages for the rural and regional areas.

Thus, we are satisfied that the establishment and development of Third Level Air Services will extend the frontiers of employment for labour, capital and enterprise.

17. Also, it has to be recognised that we have a large body of unemployed pilots and Aircraft Maintenance Engineers in reserve. They have spent large sums of money and time in securing these qualifications but their prospects of obtaining employment are limited. The establishment of Third Level Air Services would no doubt help in relieving unemployment problem of these trained personnel. There is, also, a larger Issue. For a variety of obvious reasons, India should build up a large number of trained personnel who should, at the same time, not find it too difficult to find employment. It is not only a question of building up our strength for the needs of air transport, of defence and security but obviously, creation of such reserve power and having it gainfully employed marks an important phase in the transition from a developing into a developed state.

18. Summing up, the provision of Third Level Air Services would serve numerous national objectives and goals and amongst them are, the regional prestige coupled with economic self-reliance; national unity, identity and integration; access to previously inaccessible areas; equalisation by locational dispersion including efficient resource allocation and natural resource discovery and development; development and modernisation of skills, industries, agriculture, arts and institutions in smaller towns and communities; promotion of a high level of industrial activity; trade and tourism; national security; swift delivery of mails, messages and newspapers; movement of raw materials; greater employment for trained technical personnel and workers in the rural areas; and besides it will serve many other material and social objectives, making also welfare activities, health services and cultural amenities available to smaller communities.

What needs to be realised is that countries and regions with low standards of living are characteristically countries and regions with inadequate means of air transportation.

(V) Third Level Air Services - A modest attempt in the first phase

19. Having regard to the fact that Indian Airlines is presently serving only 61 cities and that our proposal aims at adding 50 new population centres to the existing domestic network in the first phase itself, it might appear on the face of it that we have something ambitious in view. This is not so. In fact, the proposal is extremely modest as the following aspects will show:-

A fleet of 20 small aircraft which may eventually be required for operating the third level air services in the first phase, involving the addition of 50 new population centres, would provide approximately 164 million seat kilometres as compared to 4846 million seat kilometres provided by the existing fleet of the Indian Airlines in 1977-78.

Thus in the first phase of the third level air services, only about 3.5% of the capacity now generated by the Indian Airlines' fleet would be provided.

The capital cost for a fleet of 20 aircraft to serve about 50 new population centres will be approximately 50% of the cost of single Boeing 747 aircraft. Or, to put it differently, the cost will be just about as much as constructing and providing facilities for a single major domestic aerodrome (non-international).

Even the capital cost, spread over a period of three years for building aerodromes, developing infrastructure and providing communication and navigational facilities to serve these 50 new population centres would not exceed Rs. 19 crores.

In any case, the new population centres have been selected on the basis of their immediate traffic potential and the Committee has been careful to select only such centres which hold a definite promise of becoming economically viable.

Besides, as has already been clarified, at no time, neither initially nor in the later phases, will Government be called upon to shoulder any financial burden for the cost of establishing Third Level Air Services or for building the necessary infrastructure for them, since we have located an alternative source for these funds.

The State-wise distribution of the new population centres (next Section) will also show how little is proposed to be done in the first phase.

(VI) State-wise distribution of new population centres for Third Level Air Services

20. The State-wise distribution of the population centres which have been selected unanimously by the Committee is given hereunder:-

ANDHRA PRADESH

1. Cuddapah
2. Warangal
3. Rajahmundry

ARUNACHAL PRADESH

1. Itanagar
2. Along
3. Ziro
4. Pasighat
5. Tezu
6. Daborijo

ASSAM

1. Rupsi

BIHAR

1. Gaya
2. Muzaffarpur
3. Jamshedpur

GOA, DAMAN & DIU

1. Diu

GUJARAT

1. Amreli
2. Mithapur
3. Surat
4. Kandla

HARYANA

1. Karnal

HIMACHAL PRADESH

1. Simla
2. Kulu

KARNATAKA

1. Hubli
2. Mysore
3. Raichur

KERALA

1. Kozhikode (Calicut)

LAKSHADWEEP

1. Kavaratti

MADHYA PRADESH

1. Kanha
2. Jagdalpur

MAHARASHTRA

1. Ratnagiri
2. Kolhapur
3. Nanded

MEGHALAYA

1. Shillong

MIZORAM

1. Aizawl

ORISSA

1. Puri
2. Rourkela

PONDICHERRY

1. Pondicherry

PUNJAB

1. Ludhiana
2. Jullundur

RAJASTHAN

1. Ajmer
2. Jaisalmer
3. Bikaner
4. Kota
5. Abu Road

SIKKIM

1. Gangtok

TAMIL NADU

1. Ramanathapuram
2. Thanjavur
3. Tuticorin

UTTAR PRADESH

1. Pantnagar
2. Dehradun

WEST BENGAL

1. Cooch Behar



There are indeed many other places which would eventually qualify for Third Level air services. For the moment, however, the Committee having gone into the question of competing claims of all the population centres, recommends the above for inclusion in the first phase. We fully appreciate that the subsequent phases of the development of the Third Level Air Services will have to be far more ambitious taking into account not only the success of the first phase but also our large geographical area, the tempo of economic development and the need for a dispersal which should be both equitable and economic.

(VII) Operation by a Subsidiary of Indian Airlines

21. Terms of Reference for the Committee required us to examine alternatives for operating the third level services with a view to recommending the one found most suitable for acceptance:-

- (a) Operation by Indian Airlines.
- (b) Operation by a subsidiary of Indian Airlines.
- (c) Operation by a separate public sector corporation of the Central Government.
- (d) Operation by a Joint Sector Corporation of the Central and the State Governments concerned.

The relative merits of entrusting operation of Third Level air services to Indian Airlines itself or to a subsidiary of Indian Airlines or to a separate public sector corporation or to a joint sector corporation of the Central and State Governments were considered in depth by the Committee and the unanimous conclusion reached by us was that the most appropriate course of action would be to set up an airline which would be a subsidiary of Indian Airlines for the operation of Third Level air services, having regard to the attendant circumstances associated with the proposal and the advantages which the public would derive from such a project.

22. Amongst the advantages for entrusting this work to the Subsidiary of Indian Airlines, are the following:-

If the establishment of Third Level air services is to be regarded as a continuing and a developing scheme - and we do so regard it - there will be occasions when some of the third level routes will come to achieve a higher classification both in terms of greater traffic demand and the need for bigger aircraft, requiring possible integration with the routes of Indian Airlines. It will be difficult to achieve this kind of improvement in the Third Level air services unless there is a close coordination between Indian Airlines and the new operator.

- Implicit in the foregoing also is the consideration that in several cases, Indian Airlines itself may, with its own fleet, be called upon to operate some of the routes on behalf of the Third Level operator or vice versa. It will be easier thereby to achieve expansion.
- Advantages of know how, expertise, booking offices, travel agency connections, telexes and telephones with Indian Airlines have, will by a close coordination, be made more easily available to the Third Level operator, at incremental cost only. Such an arrangement can subsist only with a Subsidiary.
- Wasteful competition would be avoided.
- Indian Airlines would be able to provide better facilities for training of pilots and technical personnel.

- There would be maximum utilisation of aircraft and minimum duplication of workshop facilities and senior staff.
- Indian Airlines will feel greater responsibility to support the new unit with connections on their own trunk routes, if the subsidiary relationship is maintained.
- Investment for Third Level Air Services will be drawn from the Embarkation Charges collected from Indian Airlines passengers.
- In any case, with the present development of having one common Chairman for our two nationalised carriers (Indian Airlines and Air-India), we do not see why we should move away from the concept of coordinated development.

As the final consideration, it must be pointed out that public confidence would be greater if Indian Airlines, with its established image is entrusted with the task of operating these services through its own Subsidiary.

23. For these reasons and also taking into account the high costs, we ruled out the possibility of entrusting the Third Level air services to a separate public sector corporation or to a joint sector corporation of the Central and State Governments. Also, it is not feasible to recommend that Indian Airlines itself should directly operate these services because of larger overheads resulting in high costs, accounting problems and conflict of policy with the possibility of inattention or indifference to Third Level air services.

#### (VIII) Role of Private enterprise

24. The question relating to the role of private enterprise was not posed to us specifically and the Terms of Reference required us to consider the alternatives of entrusting the Third Level operations to Indian Airlines or to a new public sector organisation or to a joint sector Corporation or to a subsidiary of Indian Airlines. Even so, while choosing the last alternative (Subsidiary), we did consider

- (i) if private enterprise could be entrusted with the main task of operation of the Third Level operations, or
- (ii) if private enterprise could have an important supplementary role to play in respect of such operations.

In respect of (i) above, we were unanimously of the view that for reasons stated in the previous section, the main task of operating Third Level air services would have to be entrusted to a Subsidiary of Indian Airlines and not to private enterprise.

While commercial air transport in India owed its initial development almost entirely to the initiative, resource and vision of private enterprise, the fact remains that ever since nationalisation of scheduled air transport services in 1953, the role of private operators has been dwindling and they have almost disappeared from the scene. In the absence of indigenously

produced small aircraft and with the restrictions imposed on importing aircraft from abroad, private operators did not find it possible to operate many feeder routes or even non-scheduled services, although statutory provisions exist since long enabling Government to permit private operators to operate routes not served by Indian Airlines.

Let us look at the figures of their operations. In 1976, Private operators carried 9,326 passengers on scheduled and non-scheduled services, and in 1977, they carried 1,457 passengers, as against over 4 million passengers carried by Indian Airlines on scheduled services. The activity in respect of non-scheduled air transport by private operators has almost died out. How different was the picture prior to nationalisation! In 1953, nearly a hundred thousand passengers were transported by private operators on non-scheduled services alone, representing roughly 25% of what they carried on scheduled services. Year by year, there has been a noticeable decline in the activities of the private operators until they have reached a stage that all that they carried in 1977 were 1,457 passengers. It would therefore not be easy for them to undertake a large scale operation of Third Level air services. Besides, some of the considerations which weighed in favour of nationalisation can be said to be valid for application to Third Level air services as well.

Nevertheless, there is no doubt that having regard to the issue at (ii) above, private enterprise can be utilised to a great extent to serve a supplementary and complementary role even though the main task is to be entrusted to the Subsidiary of Indian Airlines. Private enterprise had at one time a leadership role in the development of domestic air transportation. If the objective of spreading and expanding the network of air services in the national interest is to be achieved, the regulatory regime to be imposed by the Government should be such as to encourage private enterprise and to give them necessary incentives for playing the supplementary role. Often, a private operator can more easily adapt his air transport product to public demand. A well managed private carrier, with low overheads, who can flexibly respond to such public demand, can possibly make a profit and at the same time offer improved services at a low cost.

25. There could be a variety of ways in which private enterprise can, given the necessary incentives, assist in the task of development of Third Level air services since, as we have said, in many cases, privately owned and managed companies could provide efficient and consumer responsive services. Thus:-

-- It should be open to private enterprise to continue to operate on routes not served by Indian Airlines and its Subsidiary.

It is of course recognised that the award of a route carries with it the responsibility for adequate performance and service.

-- Besides, privately managed companies could also operate certain Third Level services by a collaborative arrangement with or on behalf of Indian Airlines or its

Subsidiary. This collaborative management could take the form of a Charter or Sub-Charter or even "Agency relationship" or "Associateship". (An example - though not a strict parallel - of such an arrangement is Air-India's sub-charters mostly to the Gulf. In the past, Air-India rarely, if ever, entered into such arrangements with Indian non-Scheduled or private operators. It has now become a common feature.)

-- Privately owned and managed companies can enter into arrangements with State Governments, possibly on an "agency basis" or otherwise for an intensive network of Third Level Air services in their own regions. This will have to be within the strict framework of the statutory regulations and policy as promulgated by the Director General of Civil Aviation and it will need to be ensured that both Indian Airlines and its Subsidiary are kept well into the picture so that on the one hand, the services of such private carriers are operated with strict adherence to safety and security and on the other, undercutting, duplication and wasteful competition is avoided. As has already been said, our own proposal for the first phase of Third Level air services is so modest that there would not be too much satisfaction for many State Governments who may wish to make their own arrangements for establishing such services. For this purpose, collaborative arrangements with private operators might be worthwhile on their part and the routes could accordingly be awarded by Director General of Civil Aviation if the necessary conditions in respect of such operations can be met by these operators.

26. As to the specific incentives for private enterprise, since their effective participation will be important to the establishment of Third Level air services in the national interest, the following measures would be worth considering:-

- Private operators could get the treatment in respect of import of aircraft and spares as would be accorded to the Subsidiary of Indian Airlines.
- Besides import of aircraft and related equipment, private operators could also be granted the same concessions by the Centre and the States in respect of excise duties, sales taxes and landing and housing charges.

While there can be no question of giving private operators any direct financial aid from the Centre, it is felt that if the foregoing concessions and facilities are given, the private operator could turn out to be a significant participant in the Third Level activities.

#### (IX) Concessions for Third Level air services

27. The concessions that we have in view for the Third Level air services are not many.

All we are seeking is that Government should not treat, at least in the initial stages, these Third Level air services as a new course of revenue. Thus, the concessions that we

have in view are:-

- (i) Exemption from the requirement of D.G.C.A. for paying landing, housing and parking charges and route navigation facility charges.
- (ii) Exemption from or reimbursement of sales tax by State Governments on fuel and oil uplifted.
- (iii) Exemption from or reimbursement of excise duties by Central Government on fuel and oil uplifted.
- (iv) Exemption from Customs duty by Central Government on aircraft and spares imported.

Tax holidays are not unknown and are in fact a common feature in respect of pioneerin and developmental activities. In any case, the concessions that we have suggested do not involve depriving the Centre or the States of any existing revenue. Nor are we suggesting the continuance of these concessions for ever. An initial period of ten years should suffice.

As already stated, these concessions could be made available not only to the Subsidiary of Indian Airlines but also to Indian Airlines itself in respect of its own new Third Level air services that they might introduce as also to private operators who might engage in this activity.

(X) Routes for Third Level air services

28. While selecting 50 new population centres for the Third Level air services in the first phase, the Committee also gave consideration to the routes to be operated, the number of aircraft to be based at a particular central point and aspects related to utilisation of such aircraft. The Committee's recommendations are given in Appendix X-A (Chapter X). It is of course appreciated that several adjustments might need to be made and the recommendations are therefore tentative since the operator (Subsidiary of Indian Airlines) will have to take several factors into account including the need to coordinate the routes and schedules with the connections provided by Indian Airlines.

The basic consideration, however, which the Committee unanimously had in view while determining the table of Routes, was the commercial viability of the service on that route and its impact on the total domestic route system.

(XI) Choice of aircraft

29. The Committee is unanimously of the view that we should for several obvious reason and in order to achieve economy, go in for a homogenous fleet of a single type of aircraft. For the moment we will have to rely on imported aircraft until a stage is reached when an indigenously manufactured aircraft is available.

The Committee also went into the question of the choice of aircraft with some thoroughness and a co-ordinated study was also carried out by the Technical Centre of the Civil Aviation Department in conjunction with Indian Airlines assisted by the Representative of Hindustan Aeronautics Ltd., and other members of the Committee. This study can be seen in Chapter VII and the Appendices attached thereto which except for the few minor aspects specified therein, have the unanimous approval of the Committee. Basically, this study examines the merits and demerits of seven different types of small aircraft from the operational, economic and other related aspects. The study also furnishes an assessment of the operating cost and estimates of break-even points.

The Committee is of the view that this study would provide considerable assistance for the final selection of aircraft to be used for Third Level air services.

Thus, the Committee itself has not made the final choice of the aircraft, feeling that it would not be correct to do so on account of the following considerations:-

- The Committee felt that the final recommendation on its part to identify and select the aircraft for Third Level, if it leaks out, would stand in the way of the negotiation of the pricing formula and other terms and conditions of purchase. For instance, the manufacturer of the aircraft which has been finally selected by the Committee would be in a stronger bargaining position and it might also be somewhat embarrassing to the operator to deviate from the recommendation of the Committee.
- In any case, such a decision for final selection of aircraft should rest with the operator and since in this case the operations would be by the subsidiary of Indian Airlines, there would naturally be the usual Government scrutiny and adherence to established procedures at appropriate stage.

For these reasons - but mainly to avoid pressure lobbies and raising hopes in one direction or the other - the Committee felt justified in preparing a detailed study in respect of several aircraft but has not considered it fit to saddle the operator with the final recommendation. Incidentally, the Managing Director of Indian Airlines had also suggested to the Chairman of the Committee that it was the view of Indian Airlines that the final evaluation of aircraft would be premature at this stage and would need to be undertaken by the designated operator.

#### (XII) Effect on indigenous production of aircraft

30. A systematic programme of establishment of Third Level air services which has been proposed in the Report will certainly have a positive impact on accelerating the development of indigenous production of aircraft, with all its consequential advantages for the country. We have been assured by H.A.L. that they have the capacity and plans to produce a suitable aircraft for Third Level air services within the period of next few years. This must be regarded as a happy development, since apart from the other obvious advantages of manufacture of indigenous

aircraft, it will also accelerate the expansion of Third Level air services in India.

(XIII) Integrated Development

31. Obviously, the establishment and growth of Third Level air services cannot be considered in isolation from the problem of infra-structural development at our aerodromes. A safe and efficient system of airports, airways, ground equipment, navigational and communication facilities has to be provided.

In the past, there has been some lack of co-ordination in the sense that at times when Indian Airlines changed their schedules or particularly when they introduced the Airbus, its impact on the cost of aerodrome development was not considered simultaneously. In the case of an extensive system of Third Level air services, it would be worthwhile to evolve measures for greater co-ordination so that an integrated approach is achieved.

It is with this mainly in view that the Committee gave consideration to the cost and schedule of the infra-structural development for making the 50 new population centres that have been proposed. The total cost, including construction of some new aerodromes and provision of communication and navigational aids, will come to Rs. 18 crores spread over a period of three years. This cost, as has already been pointed out, will be met from the Embarkation Charges, within the framework of Aircraft Rules, 1937.

In so far as the time schedule is concerned, out of the 50 population centres which we have selected for linkage by Third Level operations, services to 40 of them can begin within a period of one year, the remaining 10 Centres where new aerodromes have to be constructed will take somewhat longer.

(XIV) Area of Agreement

32. Most of the decisions of the Committee have been unanimous. The only major point on which there has been a difference of opinion relates to financing of Third Level air services in respect of which members from Indian Airlines felt that the Embarkation Charges did not represent the appropriate method of financing. This difference of opinion has been explained in Section (I) above of this Chapter and Chapter XI of the Report.

(In parenthesis, it must be mentioned that the D.G.C.A. is in any case thinking of imposing Embarkation charges in respect of Indian Airlines domestic passengers even if the proposal for the Third Level air services does not materialise. It is possible that the scale of those charges might be slightly lower if the proposal for Third Level is scrapped. However, the question of imposing Embarkation charges has arisen in DGCA's mind not because of the proposal for Third Level air services alone but on account of the need to recover from users the cost of services provided. In the Civil Aviation Department, we have taken certain steps to increase progressively our revenue so as to meet our increasing commitments for improving

facilities at our aerodromes and in respect of air navigation and communication services. In 1976-77 and in preceding years, the revenue used to be about Rs. 3 crores per annum. Due to certain recent measures, it has been possible to increase that revenue with effect from last year from Rs. 3 crores per year to Rs. 20 crores per year. This amount is hardly sufficient to meet our rising commitments and in any case in order that the Seventh Five-Year Plan in respect of Civil Aviation should be self-sustaining, the Embarkation charges will have to be imposed well ahead of it).

33. Besides the foregoing difference of opinion, the only aspects on which the Chairman and the majority of the Committee differed with representatives of Indian Airlines were the following:-

(1) Depreciation: The majority view was that depreciation should be based on 15 years life for an aircraft keeping in view an annual utilisation of 2000 hours while Indian Airlines felt that a life-span of 10 years economic life should be provided for purposes of depreciation, having regard to high landing cycles and several important related aspects. The other members did not agree with this view, for the following reasons:-

- Indian Airlines themselves provide for 15 years depreciation for Airbus.
- Air-India provides for 15 years depreciation.
- Manufacturers' view on the small aircraft is that 15 years life should be expected.
- A lesser life expectancy based on "obsolescence concept" is not realistic under Indian conditions.

(2) Hull insurance: While the majority view was that provision for Hull insurance should be at 3 %, Indian Airlines felt that it should be at the rate of 5 %. The majority noted that Hull insurance made by Air-India and Indian Airlines for different types of imported aircraft varied from 0.80 % and above and that it is not unusual in unprofitable years for an airline even to resort to self insurance for "Hull".

(3) Spares: Indian Airlines felt that spares support should be taken at 15 % of the fly-away price of the aircraft. The view of the other members constituting the majority was that if not more than one type of aircraft was used in the Third Level operations, there would be a homogenous fleet and the need for spare support could then be reduced to 10 %, since the manufacturers' view also lends support to provision of spare support at the rate of 10 %.

(4) Spare engines: Primarily based on the view given by the manufacturers, and on the basis of the view expressed by the representative from the Hindustan Aeronautics Limited, the members of Committee other than from Indian Airlines, felt that the number of spare engines and propellers should be 25 % of the installed engines and propellers, though members

from Indian Airlines thought that the principle should be based on a minimum of 35 % of the installed engines and propellers.

However, the foregoing are not such major or serious differences and even assuming that the views of Indian Airlines are accepted substantially, the impact on the cost of operation would not be so significant and all it would mean is that the break-even point would be shifted somewhat.

(XV) Presentation of the Report

34. While presenting the Report, I should particularly like to thank Indian Airlines for their assistance. The Committee was able to draw much from the material already submitted by them in their two earlier reports on Third Level Air Services. Besides, the member from the Indian Airlines on the Committee - Shri G. D. Mathur, Deputy Managing Director, along with Shri J. K. Chaudhuri, Planning Manager and other officers of Indian Airlines prepared several studies based on which we have identified the 50 new population centres which should be served in the first phase. Our estimates of the cost of the Third Level Project assessment in respect of aircraft and the administrative structure of the Subsidiary airline are also based on these studies. Among the officers of the Indian Airlines who helped us in preparation of these studies are Capt. R. K. Sen, Shri V. D. Ganguli, Dr. G. K. Agarwal and Shri M. S. Balakrishna.

The Committee received tremendous help from Shri K. B. Ganesan, Head of the Technical Centre of the Civil Aviation Department and from Shri P. R. Chandrasekhar, Director of Research and Development and Shri R. Saha, Scientific Officer. I must also mention the valuable contribution by Dr. S. M. Ramachandra, Deputy Chief Design Engineer of the Hindustan Aeronautics Limited and Major S. G. Srinivasan, Regional Director, Air-India.

The Committee is particularly thankful to Shri I. R. Menon, Deputy Director of Regulations and Information who took upon himself organisational and secretarial burdens of the Committee including the preparation of preliminary drafts.

Particularly I must thank each and every member of the Committee. It is due to their extraordinary zeal and co-operation that this Report has been prepared within the period of three months allotted to the Committee.



(Bhagwan S. Gidwani)  
CHAIRMAN

No. AV. 14011/1/77-A

GOVERNMENT OF INDIA  
MINISTRY OF TOURISM & CIVIL AVIATION

NEW DELHI, 19th April, 1978.

It will be recalled that Indian Airlines submitted two reports on the operation of Third Level services. These reports were examined and submitted to the Minister after certain tentative conclusions were reached. The Minister had observed that the reports received from Indian Airlines are incomplete and many aspects have been left out which have to be investigated. For this purpose the Minister has directed that a Committee should be constituted as follows:-

Shri B. S. Gidwani, Director General of Civil Aviation	...	Chairman
Miss A. Mehta, Additional Director General (Tourism)	...	Member
Shri A. K. Sarkar, Deputy Director General of Civil Aviation	...	Member
Shri G. D. Mathur, Deputy Managing Director, Indian Airlines	...	Member
Shri J. K. Choudhury, Planning Manager, Indian Airlines	...	Member
Shri S. Ekambaram, Deputy Secretary, Ministry of Tourism & Civil Aviation	...	Member



2. If necessary, a representative each from Air-India and Air Headquarters can also be associated.

3. The Committee will examine the two reports regarding Third Level operations prepared by the Indian Airlines and also the schemes of operation of such services in other countries and prepare a detailed Project Report. The Committee would inter alia examine and make recommendations in respect of the following points:-

1. How should the phasing of the scheme of Third Level operations be done keeping in view the requirements of different regions, present traffic, traffic potential etc. - which places should be taken in the first phase for being connected by air services and which should be taken subsequently and in what order?

2. Out of the various available small aircrafts suitable for Third Level services, which will be the most suitable from the technical and economic point of view?
3. Examination of the pros and cons of the following alternatives for operating the Third Level services with a view to recommending the one found most suitable for acceptance -
  - (a) Operation by Indian Airlines.
  - (b) Operation by a subsidiary of Indian Airlines.
  - (c) Operation by a separate public sector corporation of the Central Government.
  - (d) Operation by a Joint Sector Corporation of the Central and the State Governments concerned.
4. What should be the administrative structure, rate structure, pay structure, route pattern etc. for the proposed Third Level services so as to ensure their proper operation and also minimise costs and maximise revenue?
5. Projections of estimated income expenditure, profit/loss over the next few years indicating when would the operations break even. (This is on the assumption that in the initial years the Third-Level operations may not be entirely self supporting).
6. Details of the minimum developmental works required at aerodromes for Third-Level operations, their estimated costs and phasing.
7. Examine whether the Third-Level operations can be subsidised by grants from the Civil Aviation Development Fund until such time they become self-sustaining.

The Committee would submit its report by the 22.7.1978.



Sd/- C. M. Chaturvedi  
Joint Secretary to the Govt. of India.

## CHAPTER - II

### INTRODUCTORY ASPECTS - THE NEED FOR EXPANSION OF DOMESTIC AIR NETWORK

#### Some factors which have impeded expansion of domestic air services

The Air Corporations Act was enacted in 1953 with a view generally "to make further and better provisions for the operation of air transport services". The functions of the Corporations include provision of adequate and properly coordinated air transport services whether internal or international or both, and the Corporations are required to exercise their powers so as to secure that the air transport services are developed to the best advantage, for which the Corporation (Indian Airlines) is empowered to take "such steps as are calculated to extend the air transport services provided by the Corporation including the development of feeder services." In the post-war era and until 1953, when Indian Airlines came into being, a total of 55 cities in India were linked by air on scheduled services. As against the 55 aerodromes to which regular services were operated either in or prior to 1953, Indian Airlines are now operating to 61 aerodromes.

2. By and large, there has been no significant increase in the number of cities served by regular air services, although from time to time there have been some changes by way of ceasing operations to certain aerodromes and adding a few new ones. The expectations and hopes arising from the Air Corporations Act of 1953 "to make further ..... provisions for operation of air transport services" in the context of the powers conferred on Indian Airlines to take such steps as are calculated to extend the air transport services within India "including the development of feeder services", cannot be said to have materialised. The significant factors contributing to this inadequacy are the following :-

- (i) Too much emphasis appears to have been given to the words "to act as far as may be on business principles" as provided for in Section 9 of the Air Corporations Act. An aspect that seems to have been by-passed or overlooked to some extent was that the concept of acting on business principles includes action designed to yield dividends at a later date even if not profitable in the early stages. The resultant position has been that Indian Airlines activities were oriented more towards selective intensification of services on certain routes, than on a targeted expansion of the domestic air network to serve a greater cross-section of the population centres.
- (ii) Non-availability of small (capacity) aircraft has been an impediment for development of services visualised in Sections 7(2)(a) and 7(2)(j) of the Act.

- (iii) The steep rise in the operating costs and particularly in the cost of fuel during the last few years ruled out the possibility of economically viable operations to new aerodromes with little traffic potential.
- (iv) The emphasis hitherto, dictated primarily by technological developments and economic consideration has been to increase the capacity provided and the frequency of services operated on the basis of traffic demands and to concentrate upon the need to improve the quality of service on well established routes of Indian Airlines. A concomitant phenomenon has been the gradual phasing out of smaller capacity aircraft in favour of larger and faster aircraft.

3. The two additional factors outlined below are also relevant :-

- (i) For more than a decade, no serious attempt has been made by private operators to avail of the statutory provision enabling them to operate on routes not served by Indian Airlines. The non-availability of indigenously produced small aircraft and for lack of a liberal and realistic approach to the import of aircraft from abroad, coupled with the ever-mounting operating costs for using out-dated Dakotas were some of the impediments for private operators entering the field of providing feeder air services to cover aerodromes not served by Indian Airlines. In fact, what little non-scheduled operations they could operate earlier have also been fast dwindling.
- (ii) No airline was thus available for developing new markets for air transport or for air-linking population centres not served by Indian Airlines. In case a subsidiary of Indian Airlines was available for provision of such feeder services, it could have rendered the much needed services to fill the gap in our Air Transport activities. (The concept of employing a subsidiary airline to cater to traffic demands which could not be met by Air-India was adopted when Air-India Charters Ltd., was set up).

4. The need to serve small and medium size communities - economic factors

It is needless to say that Air Transport is a development entirely of the 20th Century and to most of the 141 Member-States of ICAO, its impact on the national plain in the socio-economic life is of recent origin. Yet there is hardly any country today, regardless of its size or stage of development of its national economy, that thinks in terms of doing without an airline. In other words, air transport is recognised throughout the world as an industry attracting national policies, goals and objectives. It is not unusual for governments to endeavour to provide air services even when the economic viability of such services is questionable. The role of air transport in nation building, national integration, or in achieving socio-economic objectives, may vary from country to country depending on many diverse factors and this role is of paramount importance. In a country of the size of India, undeniably

there will be continuing pressures from various communities - Urban and Rural - to operate air services to their areas for a variety of reasons such as community pride, economic development and urban-rural equality. Thus the question always is not whether to have air services for relatively small communities but what is the most effective and economical method of establishing these services.

5. Keeping the foregoing in view, the Committee is of the view that to leave small and medium sized communities without scheduled air services is not in public interest and that an economical system has to be found to establish such services as soon as possible. Clearly, absence of a reasonable air service link would have serious impact on the economics of several regions. It would be inconceivable, for instance, for a commercial enterprise to be attracted into a region which is without an air service link.

6. There has been a growing emphasis on the diffusion of industrial activity and balanced regional growth. The policy of our Government lays emphasis on the desirability of dispersed industrial development. Keeping this in view, the Committee is satisfied that there is to be an extensive network of air services throughout the country as distinct from the intensive network on which Indian Airlines has so far been concentrating. The view of the Committee is not too distinguishable from the policy adopted by the Planning Commission which has also held that important consideration in industrial planning is the desirability of dispersed industrial development and that the requirement of non-farm employment is so large and so widely spread throughout the country that a greater dispersal of industrial development is a matter of necessity. The Planning Commission has also held the view that even from the narrow and economic viewpoint, the society stands to gain by dispersed development.

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7. Respectfully, the Committee agrees with the foregoing view of the Planning Commission and feels that it is all the more pertinent in respect of establishment of air services. Obviously, better dispersal of Industrial development can be encouraged by providing an extensive network of airtransport services. The establishment of such a network providing air services to small communities in the rural areas would remove the present disincentive to the industrialists to shift their activities to rural areas. Once this is provided the industrial development has vast potential to get dispersed and in this process it would not only relieve the crowding of industries in the bigger towns, but would also create a sizable employment and other resulting social benefits in the rural areas.

#### The need to serve small and medium size communities - National Integration

8. There is today a growing impatience to press forward to the goal of national integration. Whether or not the contemporary process of development is described as the "revolution of rising expectations", it is clear that the people demand and their hopes continue to rise at a pace (and with the magnitude) for which there are few historical parallels. These changes now

under way - and their range is immense - clearly point to the need for establishing air services throughout our vast geographical area, not for economic reasons alone but also from the point of view of national integration. Clearly, there are several aspects by which national integration can be achieved and amongst them, a modern communication system in which air transport has an important role to play has to be regarded as essential. India reveals marked social disparities and, obviously, expansion of air transport links would assist in bringing together the separated parts of a society into a more integrated whole. It would also assist the linking of regional, ethnic and linguistic groups into something more cohesive, with the parts linked more closely together.

#### The need to serve small and medium size communities - Other factors

9. Air transportation cannot be viewed as an activity isolated from the rest; for, it is often either the culmination of other activities or at times a necessary prelude to certain other activities. The linking of a population centre by air and placing it on the air map of the country, would have vast potential to bring about socio-economic changes. The utility of an air link is apparently not limited to reducing distances for travel and trade. The population centre served by the airport linked by air, would derive advantage from the air mail system, from access to air parcels, from delivery of newspapers by air and from more frequent visits by officials, entrepreneurs and others who are otherwise hardpressed for time. Medical facilities, emergency services, assistance in distress, suppression of crime and violence, are some of the examples in which the expansion of airlinks can help the community.

#### Experience of Other Countries

10. Problems comparable but not similar to ours, have been faced by several countries who had recognised the need for what is known as third level air services. In the development of air transport as a means of catering to the socio-economic objectives, the "third level" air services are known to have played an important role in Canada, USA, Brazil, Australia, Papua-New Guinea, Federal Republic of Germany, France, Great-Britain and Spain. The main functions of third level air services are broadly the same all over the world. However, the scope and content of policy objectives would vary from country to country and from time to time depending on the stage of development, the structure of the economy and the goals to which the Government is committed. Even so, a broad identity of approach is discernible.

11. The European States are relatively small geographical areas, and therefore the absence of a clear definition of what constitutes "third level" is understandable, since domestic trunk routes cannot be readily distinguished from domestic regional routes there, in order to distinguish clearly the third level from the first two levels. However what needs to be clarified is that practically every advanced and even several developing countries see to it that all their population centres as also their small and medium size communities do not lack air services.

12. At this stage, it might be worthwhile to clarify that in various countries the purpose of the third level air services is not limited to points inaccessible by road or rail, although for purposes of allocating priority in a phased programme for implementation of their national policies, Governments do take into account the availability and the adequacy of other modes of transportation in different geographical areas.

#### SUMMARY

13. The provisions of the Air Corporations Act did visualise activities aimed at achieving the national objective of spreading the air map of India over a wider network in the national interests, but it was not practicable for Indian Airlines to embark upon an expansion of the domestic air network mainly due to the emphasis on operation of air services on business principles and certain other compulsions. Thus, by and large, Indian Airlines had to concentrate on intensification of air services on commercially viable routes. It is also clear that private operators in the absence of indigenously produced small aircraft and with the restrictions imposed on importing aircraft from abroad, did not find it possible to fill the gap during all these years in the matter of providing third level air services, although statutory provisions exist since long enabling Government to permit private operators to operate routes not served by Indian Airlines.

14. What stands out is the imperative need in the public interest to provide third level air-links to small and medium sized communities and for this purpose third level air services connecting at least 50 more population centres in the first phase are called for.



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OPERATOR OF THIRD LEVEL AIR SERVICES

Naturally, the question which immediately arises is: Who should be charged with the task of operating the Third Level services. In accordance with the Terms of Reference, the Committee has been required to consider the relative merits of entrusting the operation of Third Level air services to

- (a) Indian Airlines
- (b) a subsidiary of Indian Airlines
- (c) a separate Public Sector Corporation
- (d) a joint sector Corporation of the Central and State Governments.

2. Indian Airlines have a well established system of working and have earned a well-deserved reputation for themselves. The concept of a Third Level is not associated with a particular quality of service, but may be marked by "something different" from the first two levels offering the user a comparable service. The Third Level does not and should not and will not give an image of inferior quality. In particular, the standards of safety and regularity are not lower than the first two levels, but all aspects of service provided on higher capacity aircraft by Indian Airlines cannot be maintained on the third level air services. Besides this important aspect, the economic viability of the "third level" depends on a measure of simplicity and frugality which are perfectly justified on short-haul services with small aircraft. Perhaps, there could be a ceiling on free baggage allowance. The in-flight services could be different. In respect of these and certain other aspects, the standards set by Indian Airlines would not be the same. Above all, the concessions to be given by the Central and State Governments and others to the Third Level air services would not be available to the services operated by Indian Airlines at present. Also, the re-equipment policy of Indian Airlines would not readily admit operation of Third Level air services directly by the Corporation. It is, therefore, expedient that the Third Level operator must have an identity separate from Indian Airlines. The separate identity would also distinguish the new endeavour with clarity to the public and facilitate accomplishment of the underlying objectives by enabling the new airline to pay its undivided attention to the task entrusted to it.

3. Indian Airlines have almost near monopoly in the operation of domestic air service now. The setting up of a separate public sector corporation solely for the purpose of Third Level air services has potential for needless controversy, multiplication of overheads and conflict of interests in the long run. For instance, what may begin as a route for Third Level air services may well qualify to a second level operation as and when the traffic demands

increase. When and how a Third Level operation can be deemed to have undergone a transition into a second level would indeed be difficult to state now. Before such a transition actually takes place, the route may well have become more remunerative and the new Corporation would naturally resist any demand for the handing over of the route/service to Indian Airlines who is principally engaged de facto in operating air services in the first two levels. On the other hand, the new Corporation would like to acquire larger capacity aircraft to cater to the requirement of the route which it has developed. Since the objective is to provide third level air services to the public at reasonable charges, measures designed to ensure maximisation of savings in expenditure including on overheads are called for. Keeping these factors in view, the setting up of a separate Corporation would not be necessary or justified.

4. What is stated in the preceding paragraph would apply equally to a joint sector corporation of the Central and State Governments. Additionally, conflicting interests of greater magnitude may arise from the setting up of such a joint sector Corporation. It would neither be expedient nor necessary to set up such a Corporation.

5. It is clear that the Third Level air services should operate principally in the public sector by an airline having an identity separate from Indian Airlines. But such operations should have no potential for any competition whatsoever with Indian Airlines. In other words, the new airline will operate in cooperation with Indian Airlines, but with a separate identity. The new airline can and must co-exist with any private or other operator authorised to operate on routes not served by Indian Airlines. Having regard to the fact that the new Airline should work in association and not in competition with Indian Airlines, it would be appropriate to set up this airline as a subsidiary of Indian Airlines who would operate the Third Level services as an associate of Indian Airlines. Since the Air Corporations Act 1953, defines "associate" in relation to the Corporation as including any subsidiary, the operation of the Third Level air services by a subsidiary of Indian Airlines would not present any legal problem. However, the funds required by the subsidiary airline to be set up for operation of Third Level air services would be provided to Indian Airlines by Government out of the funds which would be created in the manner detailed in Chapter XI of this report.

6. The setting up of the Third Level operator as a subsidiary of Indian Airlines would enable maximisation of measures for savings in expenditure including on overheads. Examination of the relative merits of entrusting operations in the Third Level to the four agencies referred to in paragraph 1, leads us to the conclusion that the setting up of an airline which would be a subsidiary of Indian Airlines, would be the most appropriate course of action, having regard to the attendant circumstances associated with the proposal and the advantages which the public would derive from such a project.

## CHAPTER - IV

### CONCESSIONS RECOMMENDED FOR THIRD LEVEL OPERATIONS

The traffic density on the Third Level air services is not expected to be high to begin with and on several routes break-even load factors cannot be expected in the initial stages. It is only in the third or fourth year of commencement of Third Level operations that the traffic would grow to an extent so as to achieve economically viable operations. The slow rate of traffic growth which should be expected on the Third Level air services to be operated by a subsidiary of Indian Airlines, would call for rendering assistance to that airline at least in the initial stages. Such assistance need not necessarily be in the way of direct subsidy. The Committee, therefore, is of the view that certain concessions have to be extended to the Third Level operations in order to maintain the cost of operations as low as practicable and that the concessions outlined below should be available for Third Level operations at least for a period of 10 years initially. The concessions so extended would assist the subsidiary airline to minimise its cost of operations and based on that the fare structure on Third Level air services at a reasonable level.

2. The bulk of the capital cost for the new airline would be the investment in regard to purchase of 20 aircraft and associated spares. The aircraft imported into India are liable to Customs Duty which is of the order of 8 % and 15 % for spare engines. Progressively, higher rate of customs duties for components and spare parts are also levied. This levy would be a heavy burden on new venture like this. The Committee, therefore, recommends that the Central Government should grant exemption from Customs Duty on aircraft and spare parts imported for Third Level air services.

3. Short haul operations with small aircraft which would be employed for Third Level air services, would be more expensive as compared to the present operations by Indian Airlines with larger aircraft. The Committee is of the view that some of the charges levied by the Civil Aviation Department should be dispensed with for Third Level air services. The charges which the Third Level air services may be exempt from levy by the Civil Aviation authorities are those prescribed for landing, housing and parking of aircraft and the route navigation facility charges.

4. At present, sales taxes is levied by the State Governments on fuel and oil uplifted by aircraft on domestic air services. Considering that the new population centres that would be served by Third Level air services would stand to gain by the operation of these services and in view of the fact that State Governments themselves would welcome the commencement of such air services, there is considerable merit in granting aircraft engaged in the operation of

Third Level air services exemption from the requirement of paying sales tax on the fuel and oil uplifted by them. The Committee feels that this is the minimum concession which should be expected from the State Governments. Accordingly, Third Level operations should be base on the proposition that the State Governments would grant exemption from the requirement of paying sales tax on fuel and oil uplifted by aircraft engaged in such air services. The Commit is further of the view that in the event of inability of any State Government to grant such exemption, the question of commencement of Third Level air services to the new population centres in the State may need to be reconsidered. If, however, the State Governments have any legal problem in granting outright exemption from the levy of sales tax on fuel and oil uplifted by aircraft engaged in Third Level air services, it should always be possible for the State Governments to arrange for reimbursement of the amount equivalent to the quantum of the sales tax levied.

5. As may be observed in Chapter XI, by a decision of the Government in 1964 the Excise duties levied by the Central Government on fuel and oil uplifted by Indian Airlines on domestic sectors were to be credited to the Civil Aviation Development Fund. The principle that excise duties levied should be utilised for development of Civil Aviation was thus a factor which had already received recognition although in the matter of raising the Civil Aviation Development Fund, the decision does not appear to have been fully implemented. There is considerable merit, having regard to the circumstances and the objectives underlying the Third Level operations that aircraft engaged in such operations should be exempt from the levy of Excise Duty by the Central Government. The Committee, accordingly, recommends exemption from the requirement of paying excise duty on fuel and oil uplifted by aircraft engaged in Third Level air services.

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6. To sum up, the following concessions should be made available for Third Level operations:

- (i) exemption from the requirement of paying landing, housing and parking charges, and route navigation facility charges by the Civil Aviation Department,
- (ii) exemption from or reimbursement of sales tax by State Governments on fuel and oil uplifted,
- (iii) exemption from or reimbursement of excise duties by the Central Government on fuel and oil uplifted,
- (iv) exemption from Customs Duty by Central Government on aircraft and spares imported.

7. In addition to the above, Indian Airlines should be expected to provide support facilities in ticketing, marketing and sales promotion etc. in so far as its subsidiary airline is concerned.

who would reimburse to Indian Airlines the expenditure on these items on the basis of incremental cost. Indian Airlines should also be expected to forego any agency commission on sales of tickets effected through their offices.

8. It is the view of the Committee that the concessions outlined in paragraph 6 above, should be made available also to private operators who might be permitted to operate air services on routes not served by Indian Airlines pursuant to the existing statutory provisions.



## CHAPTER - V

### ADMINISTRATIVE STRUCTURE AND RELATED ASPECTS - SUBSIDIARY OF INDIAN AIRLINES

Item 4 of paragraph 3 of the Terms of Reference of this Committee reads as follows:

"What should be the administrative structure, rate structure, pay structure, route pattern, etc. for the proposed third level services so as to ensure their proper operation and also minimise costs and maximise revenue?"

2. The route pattern is discussed separately in this Report. This chapter deals with the administrative structure, rate and pay structure of the airline (for third level air services) which would be a subsidiary of the Indian Airlines. As already observed in Chapter I, the sale of Third Level operation proposed by the Committee in the first phase is modest. The Third Level activities are expected to expand progressively in the successive phases. The administrative structure and related aspects discussed here are with reference to the first phase of the Third Level activities which visualise the linking up of 50 more population centres with a fleet of 20 small aircraft.



#### Administrative Structure

3. The Third Level air services will be operated in four continuous areas or zones from a conveniently located Headquarters, connecting towns and cities on commercial, social and other considerations. In order to make the above operations economically viable, the overheads must of necessity be kept at the barest minimum. Accordingly each unit or zone may have a General Manager and the following functionaries:

- Chief Pilot
- Engineering Chief
- Traffic & Sales Manager
- Chief Accountant.

4. The General Manager and functional heads may each have a Secretary and an Assistant. The Chief Accountant who would also look after purchases and personnel, may be assisted by a Junior Officer and 3 or 4 Assistants as required.

5. The Engineering Chief will be assisted by a group of about 3 Engineers and 5 Technicians for carrying out major and line maintenance of airframe and maintenance of spares and inventory control. It is proposed that overhaul of engines, avionics and other components should be arranged in collaboration with Indian Airlines so that the new airline will need to bear only incremental expenses.

6. The handling of flights, ticketing, ground transportation of passengers may be entrusted, if need be, to agents to be appointed on a retainer with a commission on sales.

7. The Managing Director will be responsible for policy and planning and overall co-ordination and his office may be located at the headquarters of one of the units at any other convenient location. The Managing Director may be assisted by a Secretary (who will also look after legal work), a senior assistant and a Chief Accountant who will integrate the unit accounts. Each unit will be treated as a separate cost and profit centre for all practical purposes.

8. The organisational structure has to be flexible and initial appointments could be made on contract from ex-airlines and ex-IAF personnel, DGCA personnel, flying clubs, suitably qualified unemployed commercial pilots etc. keeping in view the need for minimising expenses.

#### Pay Structure

9. The proposed pay structure of the various personnel is as follows:

Regional Set-Up	Equivalent I.A. Grade	Pay Scale (Rs.)	Salary Allowances and Perquisites Rs.
1. General Manager	18	2100-100-2400	5000
2. Chief Pilot	16	1700-100-2200	5250
3. Engineering Chief	16	1600-100-2000	4000
4. Traffic & Sales Manager	16	1600-100-2000	3500
5. Chief Accountant	13/14	820-50-1320-60- 1500-100-1600	2200
6. P.A./Secretary	7/8	385-25-560-40-720	1100
7. Assistants	3/6	150-10-200-15-245- 20-385-25-560-40-640	750
8. A.M.E.	10/12	870-50-1320-60-1380	2075
9. Technicians	3/6	245-20-385-25-560- 40-640	1000

#### Headquarters Set up

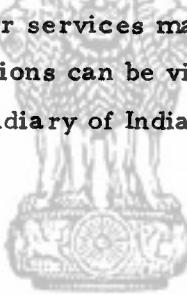
1. Managing Director	19	2300-100-2600	5750
2. Secretary	16	1600-100-2000	3500

10. Of necessity the rate and fare structure of the airline will have to be kept flexible and it will take note of comparable fares and freight rates available by circuitous surface routes. The fares will be around 60 paise per kilometre and the basic freight rate will be 1.1 % per kilogram of the established fare of around 60 paise per kilometre. The freight rates may be

directional depending on the load available and the capacity of the various types of commodities to bear certain promotional rates. The mail rates will be negotiated with DG P & T.

11. It will be noted that while discussing operating costs and making provisions thereto in Chapter VII, 10% of the direct operating costs are provided as indirect operating expenses which naturally are intended to cover the expenses on administrative and related matters. The administrative structure and related aspects referred to here, including the pay structure of various persons would appear to suggest that 10% of the D.O.C. would not be sufficient to meet the expenses and that another 2 or 3% of the D.O.C. might be additionally required. The Committee, however, is of the view that with the required circumspection and a correct appreciation of the need to maximise savings in expenditure on overheads etc. it should be possible to meet the indirect operating expenses with 10% of Direct Operating Costs.

12. The need to air link certain towns and cities has been discussed in great detail in Chapter II. Illustrative route pattern for the four regions air linking towns and cities in close proximity having traffic affinity with each other may be seen at Appendix XA of Chapter X. In the absence of detailed market surveys, the air services would naturally be initially on an experimental basis with close study of revenue and demand, operating pattern, operating results, etc. Although the Third Level air services may not initially make a profit, the possibility of commercially viable operations can be visualised within three or four years of commencement of air services by a subsidiary of Indian Airlines.



## CHAPTER - VI

### CAPITAL COST OF THE PROJECT

#### Development of ground infrastructure and setting up of subsidiary airline

The source of funds for Third Level activities i. e. for development of ground infrastructure has been discussed. As already observed, an amount of approximately Rs. 3.23 crores now available in the Civil Aviation Development Fund and an additional amount of approx. Rs. 143 crores by way of embarkation charges from domestic passengers during the next ten years are presumed to be available for financing the Third Level project which includes provision of ground infrastructure and the setting up of a new airline as a subsidiary of Indian Airlines. The first phase of development of the Third Level air services involves the linking up of 50 new aerodromes, including the construction of some new aerodromes. The works outlay for ground infrastructure to be provided by Government at these 50 aerodromes would be approximately Rs. 18 crores. The capital cost for setting up an airline subsidiary to Indian Airlines would be about Rs. 21 crores with Customs Duty and Rs. 19 crores without Customs Duty, for a fleet of 20 aircraft and associated spare support, freight, insurances, etc.

2. While estimating the above cost for setting up an airline as a subsidiary of Indian Airlines, the following points came up for detailed discussion in the context of views held by Indian Airlines somewhat at variance with those of other members in the Committee. Members representing the Civil Aviation Department, Ministry of Tourism & Civil Aviation and HAL held one view while Indian Airlines held somewhat different view in regard to provisions for Hull insurance, depreciation and "spares support". It was agreed that while accepting the majority view, the view held by the Indian Airlines should also be recorded on these points. Accordingly the following observations are made with a view to clarify the position:

#### (i) Depreciation

The majority view was that depreciation should be based on 15 years life for an aircraft keeping in view an annual utilisation of 2000 hours. It is not unusual that a life span of 15 years is provided for an aircraft. The success of Third Level operations will depend on achieving the lowest cost of operation and it was the majority view that the aircraft could be used for a period of 15 years and that depreciation should be provided for accordingly in order to keep the cost of operations low and realistic. It was felt that the concept of having aircraft replaced earlier than 15 years was not realistic. Accordingly, it was decided that depreciation should be on the basis of 15 years life for an aircraft.

Indian Airlines, however, felt that a life-span of 10 years economic life should be provided for small aircraft for purposes of depreciation. The other members did not agree with this view, for the following reasons :-

- (a) Indian Airlines themselves provide for 15 years depreciation for Airbus.
- (b) Air-India provides for 15 years depreciation.
- (c) Manufacturers' view on the small aircraft is that 15 years life should be expected.
- (d) Our own experience with small aircraft like Dakota, has been very encouraging to provide for depreciation on the basis of 15 years life.
- (e) Thus, on the basis of observations and recommendations of manufacturers, 15 years life expectancy for aircraft for Third Level operations would be realistic. A lesser life expectancy based on "Obsolescence concept", is not realistic under Indian conditions. Indian Airlines was of the view that early obsolescence should be provided for, on account of high landing cycles and other important related factors.

(ii) Hull Insurance

While the majority view was that provision for Hull insurance should be at 2%, Indian Airlines felt that the rate was too low and that the cost assessment should be on the basis of provision for Hull insurance at the rate of 5%. After discussion in depth, it was agreed by the majority of the members that not more than 3% should be provided for Hull insurance, in any case having regard to the provision for Hull insurance made by Air-India and Indian Airlines for different types of imported aircraft varying from 0.80% and above. It is not unusual in unprofitable years for an airline even to resort to self insurance for "Hull". Accordingly, it was decided that the provision for "Hull" insurance should be at the rate of 3% while Indian Airlines continued to feel that it should be at the rate of 5%.

(iii) Spares

Indian Airlines felt that spares support should be taken at 15% of the fly-away price of the aircraft. The view of the other members constituting the majority was that if not more than one type of aircraft was used in the Third Level operations there would be a homogenous fleet and the need for spare support could then be reduced to 10%. The manufacturers' view also lends full support to provision of spare support at the rate of 10%. Keeping these considerations in view and the need for not loading this new airline with unjustifiable burden, it was decided by the majority that spare support should be at the rate of 10% instead of 15% as suggested by Indian Airlines.

In any case there are a large number of foreign Third Level operators and rarely it is for them to maintain as much as 10 % of the fly-away price of their fleet of aircraft. Based on this experience, however, Indian Airlines felt that the wiser course would be to provide for 15 % reserve of spares.

(iv) Spare Engines

Primarily based on the view given by the manufacturers, and on the basis of the view expressed by the representative from the Hindustan Aeronautics Limited, the members of this Committee other than from Indian Airlines, decided that the number of spare engines and propellers should be 25 % of the installed engines and propellers. Indian Airlines, however, felt that the principle should be based on a minimum of 35 % of the installed engines and propellers based on this experience and in order to avoid frequent disruption of services.

(v) Auto Pilot etc.

Indian Airlines expressed the view that the aircraft should be fully equipped, including auto-pilot, weather radar and other IFR capabilities and consequently the fly-away price of the aircraft will increase by around \$ 70000 over the basic price. The Committee agreed that while auto-pilot should no longer be regarded as a luxury, the need for installing it in the aircraft could be examined by the Third Level operator on the basis of some experience gained in Third Level operations, having regard to the fact that the Third Level air services would be on short sectors and that each aircraft would have a crew complement of 2 pilots. As regards weather radar and other IFR capabilities, the standard Avionics pack should for the time being be regarded as sufficient until the position is reviewed later on by the Third Level operator in view of the fact that new aerodromes being prepared for Third Level operations would not have sophisticated equipment like ILS, DME, etc. The fact that the Third Level operations visualised would be mainly operated between dawn and dusk was also a factor to be kept in view. It was noted that most Third Level operators throughout the world do not equip their aircraft with auto-pilot. However, the Committee agrees that in the years to come the provision of this equipment would be desirable.

3. While the majority view on items (i) to (v) above, should be regarded as realistic, it is worth mentioning that even if the assumptions of Indian Airlines in respect of spare engines, spare supports and hull insurance are substantially accepted, their impact on the cost of operations would not be too significant. All it would mean is that the break-even point would be shifted somewhat.

4. As already observed, the capital cost of this project is not limited to setting up a new airline as a subsidiary of Indian Airlines. The cost of making available 50 additional

aerodromes with the minimum infrastructure facilities is also an important factor. It is estimated that about Rs. 18 crores would be required to make 50 aerodromes available for Third Level operations. However, this expenditure on ground infrastructure in the first phase of the Third Level activities would be spread over a period of 3 years or so. At some of the aerodromes, some basic facilities are already available while at certain other aerodromes, minimum facilities have to be provided. Yet at some other aerodromes it would take about 2 years to provide facilities and the construction of new aerodromes at some places would take about 3 years for completion to make the aerodromes ready for air service. Likewise, the entire capital cost for setting up a new airline with a fleet of 20 aircraft would also not be necessary in the initial stage itself since all the 50 aerodromes proposed to be airlinked in the first phase would not be ready for operations in the first year. The source of funds for Third Level activities described in Chapter XI would provide the basis for these expenses. The Committee feels that the funds so available for Third Level activities should be apportioned for setting up the new airline and for works at the aerodromes as indicated below.

5. In the first and second year, the levy of embarkation charges from domestic passengers should be apportioned at the rate of 30 % for construction work at the new aerodromes for Third Level activities, and the remaining 70 % should be available to Indian Airlines for Third Level operations either by themselves or for use by the subsidiary airline. In the third and fourth year, the apportionment for Indian Airlines would be 60 % of the embarkation charges and from the 5th year onward it would be at the rate of 50 % until the lapse of a period of 10 years from commencement of Third Level operations by the subsidiary of Indian Airlines or until a total of Rs. 100 crores is made available to Indian Airlines whichever is later. Including the amount now available in the Civil Aviation Development Fund, it is suggested that a total of about Rs. 100 crores should be made available to Indian Airlines in a phased manner for Third Level operations to be undertaken either by themselves or for use by the subsidiary airline specially set up for this purpose. In other words, no amount would be earmarked for Third Level operations after Rs. 100 crores are made available to Indian Airlines from the fund created by a levy of embarkation charges from domestic passengers.

6. The technical and economic evaluation of aircraft for Third Level operations including the cost of operations and estimated annual profit/loss are described in the next chapter. It is expected that the Third Level air services on several routes would not find adequate quantum of traffic in the very initial stage itself. In other words, on several of the routes, the Third Level traffic may take some time to pick up. On a rough estimate, however, it is expected that system-wise, the Third Level air services to be operated by a subsidiary of Indian Airlines would break even and make profits in the fourth year of commencement of air services. However by then, new Third Level routes should be opened, and it is with this in view that continuing support to the extent of Rs. 100 crores has been provided for Indian Airlines.

## CHAPTER - VII

### TECHNICAL & ECONOMIC EVALUATION OF AIRCRAFT FOR THIRD LEVEL OPERATIONS

#### PART - 1

##### CHOICE OF AIRCRAFT

While the use of relatively small aircraft is called for in the third level, it is equally self-evident that the operating expenses per seat kilometre, are bound to be considerably higher than those of larger capacity aircraft. Keeping these and other relevant factors in view, it is essential to decide on the size of the aircraft for the third level operations.

###### Seating Capacity

2. Aircraft for third level operations can be broadly grouped in three different categories viz:

- (i) 8-15 seats
- (ii) 16-20 seats
- (iii) 21-30 seats.

A study of the operating cost per seat-kilometre of the above three class of aircraft has indicated clearly that it would be the lowest for the 21-30 seater class and the highest for 8-15 seater. To give an idea, the ratio of cost of producing unit seat kilometre by the first and the second categories of aircraft could be as high as 1.8 : 1. From a study of the rail traffic, particularly those of the First Class and ACC, and the importance of the places chosen already, it is felt that the traffic demands in the Third Level would be met by use of aircraft offering 16-20 seats initially in the majority of the networks. After the air services have been started the question of introducing aircraft with 30 seats which will give an advantage of lower direct operating cost can be considered based on the actual traffic.

3. Among the major parameters, those determining the choice of aircraft are as follows:-

- a) Single Engine Service Ceiling
- b) Short Field Performance
- c) Capability to operate from semi-prepared and un-prepared runways
- d) Pressurisation.

###### (a) Single Engine Service Ceiling

4. From safety consideration, this is a very important parameter. This parameter would reveal what the capability is of an aircraft to clear obstacles safely and to continue flying in the event of an engine failure. The required or acceptable minimum single engine service ceiling would depend on the region where the aircraft is operating. For example, in

north-east areas a higher ceiling is required than that required in the plains. Hence, for operations in the north-east, the aircraft must have a high single engine service ceiling in order to clear the obstacles safely. This parameter will not be so important in the plains.

(b) Short Field Performance

5. The aircraft must be able to operate from short fields. This is important as some existing airfields for the Third Level network are short and also for saving on the cost of building new runways at some places. The aircraft may not be a STOL aircraft in the strict sense. The capability of operating from short fields must exist under high temperature and high altitude conditions. This is especially true in our country where the temperatures may go up to ISA + 35°C.

(c) Capability of operating from semi-prepared and un-prepared runways

6. Many places which are included in the Third Level network may require runways and some existing runways may require strengthening. From the cost point of view, it would be highly desirable if the aircraft can operate from semi-prepared or unprepared runways. This condition will be met by low LCN which in turn would depend, among other things, on the tyre pressure, low pressure tyres being desirable.

(d) Pressurisation

7. Pressurisation will be useful if the aircraft has to fly continuously at altitudes higher than 10000 ft. (3048 m.). In the north-eastern Region and Ladakh areas, because of the difficult and mountainous terrain and on occasions due to bad weather, the aircraft may have to fly at over 3000 m. A pressurized aircraft would be desirable. There are not many aircraft with pressurisation available in this class. Moreover, the cost of an aircraft with STOL performance with capability to operate from unprepared runways and with pressurization and airconditioning would be rather high. This would also add further to the cost of operations. A compromise is possible with special provisions for individual oxygen systems both for passengers and crew on the aircraft wherever there is continuous operation at high altitudes.

AIRCRAFT TYPES

8. We have not considered pure jet aircraft, since they are basically expensive for Third Level Operations. The following types of aircraft have been considered suitable for third level operations :-

1. ARAVA-202	6. Nomad N 24A
2. Turbolet	7. Trislander
3. CASA-212	8. Beechcraft B-99
4. Twin Otter 300 Series	9. Short Skyvan
5. Swearingen Metro-II	10. Bandeirante EMB-110P2

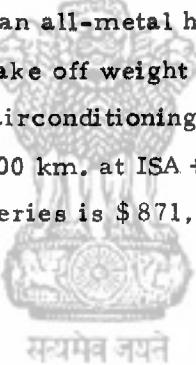
9. Information on ARAVA-202, which is from Israel is not readily available. Similarly information on CASA-212 of Spain is not readily available. Detailed cost figures have not been furnished by the firm manufacturing Turbolet in Czechoslovakia in spite of our requests. The remaining seven aircraft have been considered in detail. The salient features of these aircraft including date of certification, number sold, seat capacity, etc. are given below:

Twin Otter 300 Series

10. This aircraft is manufactured by the De Havilland Aircraft of Canada Ltd. The Twin Otter aircraft was first certificated in April, 1969. The aircraft currently holds certificate under Canadian Ministry of Transport requirements, FAA SFAR - 23, and BCAR STOL performance requirements. The aircraft has STOL capabilities and can operate from semi-prepared runways. It is powered by two Pratt and Whitney PT6A-27 turboprop engines each developing 620 SHP at take-off. The aircraft carries a maximum number of 20 passengers in the cabin and two crew. It can be converted to cargo version. The aircraft is being currently put to many uses including search and rescue, forestry services, etc. About 600 Twin Otters of all series have been sold till to date.

11. The Twin Otter 300 Series is an all-metal high wing (strutted) monoplane with fixed tricycle landing gear. The maximum take off weight is 5670 kg. It has a provision of cabin heating by bleed air. It does not have airconditioning and pressurisation system. The block speed of the aircraft over a range of 200 km. at ISA + 15°C is 267 km. per hour. The fly away price of the standard Twin Otter 300 series is \$ 871,000 (U.S.). (Item 1 of the list of Reference annexed).

Swearingen Metro-II



12. This aircraft is manufactured by the Swearingen Aviation Corporation of USA. The aircraft was certificated under FAA SFAR - 23 in June, 1970. The aircraft is meant normally to operate from prepared runways but it is claimed that by utilising low pressure tyres the aircraft can be operated from unpaved runways. The manufacturer has stated that the aircraft is being operated with low pressure tyres in Australia and demonstrations have been made from gravel runways in Brazil. (However, this option would increase the cost of standard aircraft slightly.) This aircraft would require a relatively longer field length and would not come in the category of aircraft with short field performance. The aircraft is powered by two AiResearch TPE.331-3UW-330G turbo-prop engines each having a take-off dry rating of 840 SHP and wet rating of 940 SHP. The aircraft can carry 19 passengers and 2 crew. The aircraft can also be used as cargo aircraft. Thirtythree aircraft were sold till January, 1977.

13. The Metro-II is an all-metal low wing cantilever aircraft having a retractable tricycle undercarriage. The maximum weight of the aircraft is 5670 kg. It has cabin environmental control through heating by bleed air and cooling through air cycle. The aircraft is pressurized.

The block speed of the aircraft for a range of 200 km. at ISA + 15°C condition is 405 km. per hour. The price of the standard aircraft is \$ 1065,000 (U. S.). This price may go up to \$ 1068,000 (U. S.) with low pressure tyres. (Item 2 of the list of Reference Annexed).

#### Nomad N-24A

14. The aircraft is being manufactured by the Government Aircraft Factories, Australia. The aircraft is certificated to Australian requirements and is awaiting Certification under FAR Part-23 and Appendix A of FAR Part 135. The aircraft is cleared for operations from unpaved surfaces including grass, earth, sand and gravel strips. It is powered by two Allison 250-8178 turbo-prop engines each developing 400 SHP. The aircraft can carry 16 passengers and two crew. Till 1976-77, six aircraft were sold.

15. This aircraft is an all-metal (strutted) high wing aircraft incorporating STOL feature with retractable undercarriage. The maximum weight of the aircraft is 4265 kg. It has an optional airconditioning system. At ISA + 15°C over a stage length of 200 km. the block speed is 250 km./hr. The cost of the standard aircraft is \$ 605,000 (U. S.) (Item 3 of the References annexed).

#### Trislander

16. This aircraft is being manufactured by the Britton-Norman Ltd., U. K. and is a development from the 10 seat twin engined Islander. The aircraft incorporates more than 75% of original Islander parts. (The Islander has been a very successful aircraft and large numbers have been sold.) The aircraft was certificated in May, 1971 and is approved under BCAR Section K and FAA requirements. The aircraft is approved for operations from unpaved, semi prepared and grass surfaces. It is powered by three Lycoming 0-540-B4C5 piston engines each producing 260 h. p. The aircraft has a capacity of 16 passengers and 2 crew. It can also be converted to a pure cargo version. Till the middle of 1977, 51 aircraft have been sold. Britton Norman Ltd. however, have been having financial problems and on more than one occasion, changed hands.

17. The Trislander is an all-metal high wing (cantilover) monoplane with a fixed undercarriage. The maximum take-off weight is 4536 kg. The aircraft does not have airconditioning and pressurisation. At ISA the aircraft attains a block speed of 240/km./hr. over a stage length of 200 km. The fly away price of a standard aircraft is \$ 383,625 (U. S.). (Item 4 of list of Reference annexed).

#### Beechcraft B-99

18. This aircraft is manufactured by the Beech Aircraft Corporation of the USA. The aircraft was certificated in 1968 under FAR Part 23. The aircraft is also certificated to FAR Part 135. It is powered by two UACL PT6A-27 turboprop engines each developing 680 SHP.

A total number of 164 aircraft were delivered by August, 1977. The manufacturers have stated that at the moment production has been completed. It has been stated that production can be taken up against orders.

19. The B-99 is an all-metal low wing (cantilever) aeroplane with retractable tricycle type undercarriage. The maximum take-off weight is 4944 kg. This aircraft can carry 15 passengers plus 2 crew. The block speed of the aircraft at ISA + 15°C over a sector distance of 200 km. is 353 km./hr. The aircraft is not pressurised. The aircraft has heating and cooling systems. The fly away price of the standard aircraft is \$ 937,000 (U.S.) (Item 6 of the list of References annexed).

#### Short Skyvan

20. This aircraft is manufactured by Short Bros. of the U.K. The aircraft was certificated to BCAR Section D Group C or Section K in May 1968. The aircraft has short field capacity and for operation from semi-prepared runways. It is powered by two Garrett AiResearch TPE 331-2-201A turboprop engines each developing 715 SHP at take-off. The aircraft carries a maximum of 19 seats in the cabin and two crew. Till July, 1977, 177 Skyvans were sold.

21. The aircraft is an all-metal strut braced high wing monoplane with a fixed tricycle undercarriage. The aircraft does not have airconditioning and pressurisation system. The maximum take-off weight of the aircraft is 5670 kg. The block speed of the aircraft over a range of 200 km. at ISA + 15°C is 255 km. per hour. The price of a standard Skyvan was about \$ 884,080 (U.S.) in April, 1978. (Item 5 of the References annexed).

#### Bandeirante EMB-110P2

22. This aircraft is being manufactured by BNBRAER of Brazil. The aircraft was certificated to FAR Part-23 in December, 1969. It is powered by Pratt and Whitney PT-6A-34 turboprop engines each developing 750 SHP at take-off. The aircraft carries a maximum of 18 seats in the cabin plus two crew. Currently, the aircraft is being put to varied uses.

23. The airplane is a low wing all metal (cantilever) monoplane having retractable tricycle landing gear. The maximum weight of the aircraft is 5670 kg. It does not have pressurization system. The block speed of the aircraft over a range of 200 km. at ISA + 15°C is 300 km. per hour. The price of an equipped aircraft was \$ 896,670 (U.S.) in December, 1977. (Item 7 of the References annexed).

TECHNICAL AND PERFORMANCE EVALUATION

General

24. The leading particulars of all the aircraft are given in Table - 1 annexed to this Chapter. It may be pointed out that except for the Trislander aircraft which is a piston engined aircraft, all others are turboprop aircraft.

25. The performance parameters have been determined at temperature conditions representing these in this country. However, due to non-availability of complete information for some of the aircraft, the performance parameters for these aircraft have been given at somewhat different temperature conditions. The range of the Trislander has been given at ISA conditions and that of the Bandeirante at ISA + 15°C conditions for cruise and climb.

26. For range estimation, Operating Weights Empty (OWE) of various aircraft have been estimated by adding weight of two crew and their baggage (174 kg.), weight of Collins Avionics Pack (65.5 kg.) and weight of unusable fuel and oil to the standard weights of the aircraft as supplied by the various manufacturers in their letters and various documents listed in the enclosed list of references. The weight of the Collins Pack is taken from Ref. 8.

Field Performance

27. Two aspects have been studied in evaluating the field performance :- (i) the distances required for take-off and landing and (ii) the tyre pressures. Tyre pressure is an important indicator of aircraft capability of operating from unprepared runways, grass field etc. In the light of the infrastructure which would be available in our country for third level operations, it is felt that operations from unprepared runways or grass fields will be required in the areas where the airports are non-existent like Itanagar, Gangtok, etc. For such places aircraft with short field performance and with low tyre pressures(about 45 p. s.i.) would be essential. It is seen that only four aircraft namely Twin Otter, Nomad 24-A, Skyvan and Trislander would satisfy this requirement. However, for places where proper runways are available, the short field performance tyre pressure will not be a major constraint.

28. The take-off and landing distances have been worked out at ISA + 30°C and sea level conditions except for Skyvan and Bandeirante. It is seen that Twin Otter, Skyvan and Trislander require the least distances. However, from airworthiness consideration, accelerate-stop distance is a critical parameter for aircraft certificated under FAA SFAR-23 (Twin Otter, Metro, B-99) and Appendix-A of FAR 135 (Nomad N 24A). It is evident from the table that the accelerate-stop distance is higher than the take-off distance and hence, the runway must have a minimum field length equal to the accelerate-stop distance.

### Single Engine Service Ceiling

29. This is a very important parameter when operating in mountainous regions and difficult terrain. Single engine service ceiling would determine whether and how safely an aircraft can clear the en route obstacles. In the Table - I, this parameter has been determined for each aircraft at ISA + 20°C assuming a rate of climb of 15 m/min. at the respective maximum take off weight. This brings out the capability of the aircraft under severe conditions. It is seen that Twin Otter and Metro-II have the highest single engine service ceiling. The Nomad N 24 A has got the lowest service ceiling of 853 m. which may not be adequate for safe operations in the North-eastern region.

### Speed

30. For airlines operations, the block speed of an aircraft is more important than the maximum cruising speed. The block speeds for all the aircraft for a sector distance of 200 km. are given. It can be seen that Metro-II has the maximum block speed of 405 km/hr. The higher the block speed, the lower will be the unit cost per seat-kilometer because the productivity of any aircraft is directly proportional to its block speed. The block speed should also match the route network for proper utilisation of the aircraft. If the network is small, and services are few, the higher block speed will reduce the annual utilisation thus increasing the cost of operational

### Range

31. In Table - 1, range at maximum payload for each of the aircraft is given assuming a reserve fuel for 45 minutes holding. The weight of each passenger and his baggage is assumed to be 79 kg. It would be seen that B-99 has the maximum range under these conditions. If operational needs call for more reserve fuel, then the range for each aircraft will decrease.

### Power

32. The Metro-II has the most powerful engine of all the seven aircraft considered and has provision for wet power also. Considering that aircraft certificated under SFAR 23 and Appendix A of FAR 135 should meet the requirement of take-off and en route climb gradients at all altitude and temperature conditions, the take-off weights of many aircraft will be restricted under high temperature and altitude conditions. In this respect the higher available power would be beneficial for making take-off possible at higher weights.

### Cabin and Passenger comfort

33. For passenger comfort, the seat pitch and cabin volume per passenger are important parameters. It is seen that most of the aircraft have seat pitch of 75 cm except Bandeirante which has a seat pitch of 81 cm. The Skyvan has the maximum cabin volume per passenger. Also the Skyvan provides maximum cabin height and width of 1.98 m but it has a low cabin length.

PART - III

ECONOMIC EVALUATION

34. The Civil Aviation Department has collected data and cost figures of various aircraft on the basis of enquiries issued in June 1977. Subsequent to the third meeting of the Committee on 1st June, 1978, cables were issued to the different manufacturers requesting for the current prices of the aircraft. Five manufacturers namely, De Havilland of Canada, Swearingen Aviation Corporation, Short Bros., Britton Norman Ltd. and Government Aircraft Factory, Australia, have furnished by cable the current prices of their respective aircraft viz. Twin Otter Series 300, Swearingen Metro II, Skyvan, BN-3 Trislander and Norman N 24A. These prices are valid for 3 months.

35. The prices of the other two aircraft were obtained as under:

Beechcraft B-99 - August, 1977.

Bandirante - December 1977.

36. Since the prices at the time of purchase would be different from those specified above, the operating cost will also correspondingly change. It should, therefore, be pointed out that the unit operating costs worked here may not represent the actual cost of operations when the third level air services commence. Also, the costs shown represent a broad picture of operating cost on comparative basis rather than in absolute terms. More realistic cost figures will only be possible by floating a proper tender and taking into account the financial terms and conditions agreed upon with the manufacturers, and taking into account the route network etc. Under the circumstances the result of the present study can only be indicative of the general picture rather than giving the actual choice of aircraft.

37. The unit operating costs have been worked out for all the aircraft at two values of annual utilisation. Two cases have been considered, one assuming all duties, taxes and civil aviation charges and the second assuming no duties, taxes and civil aviation charges. The unit costs are given in tables 2(a) and 2(b). The basis for the calculation of operating costs has been given in Appendix 'X'. The total capital investment in respect of each aircraft is given in Appendices A to G. It may be seen that the unit costs have been worked out by taking a fleet of 20 aircraft of each type. A fare level of Rs. 0.60 per passenger-kilometre has been taken to work out the annual losses/profits in tables 3(a) to 3(g).

38. The total capital investment required in respect of each aircraft given in Appendices A to G shows that the Metro-II requires the highest investment. The capital investments without customs duties for all the aircraft are given below :-

Swearingon Metro-II	Rs. 2277.05 lakhs
Beechcraft B-99	Rs. 1968.77 lakhs
Short Skyvan	Rs. 1914.87 lakhs
Twin Otter	Rs. 1875.08 lakhs
Bandeirante EMB-110P2	Rs. 1769.81 lakhs
Nomad N24A	Rs. 1307.97 lakhs
Trislander	Rs. 830.09 lakhs

39. When customs duties are charged, the capital investment for each aircraft will go up by about 10 %.

40. It has been stated above that the prices of the B-99 and Bandeirante used in the study were given by the manufacturers in August and December 1977 whereas the prices for all the other aircraft have been given by the firms in 1978. Therefore, their cost comparison with other aircraft may not be exact.

41. From tables 2(a) and 2(b) it is noted that the Swearingen Metro-II has the least unit cost per available seat kilometre (ASK) when all duties are charged in view of its high block speed. The Bandeirante is a very close second. When no duties and taxes are considered, the Trislander shows the least unit cost per ASK, but it may be pointed out that the costs of Trislander are based on fuel consumption at ISA conditions, and that fuel consumption at higher temperatures (e.g. using ISA +20°C for climb and ISA +15°C for cruise) will be higher. This point needs to be borne in mind in comparing the costs. It may be mentioned that scheduling of aircraft may also affect the actual utilization figures, thus affecting actual cost of operations. In the very short time given to the Committee, it was not possible to account for the effects of route structure and scheduling in the economic evaluation.

Further, the old prices of B-99 and Bandeirante must be kept in mind while comparing the costs per ASK for the various aircraft.

42. Taking a fare level of Rs. 0.60 per ASK, break even load factors for all the aircraft have been determined and are given below :-

	Utilisation - 1500 hrs.		Utilisation - 2000 hrs.	
	Without duties & taxes	With duties & taxes	Without duties & taxes	With duties & taxes
Twin Otter	47%	60%	42%	53%
Metro-II	40%	52%	33%	45%
Nomad N 24A	43%	53%	38%	48%
Trislander	37%	60%	33%	57%
Beechcraft B-99	48%	62%	42%	55%
Skyvan	52%	63%	45%	57%
Bandeirante EMB-110P2	43%	55%	37%	48%

43. It is thus clear that no aircraft can operate profitably at a load factor of 40% if all the duties and taxes are charged. However, when exemption from duties and taxes is given, two aircraft namely, Metro and Trislander will break even/make profit at 40% load factors at 1500 hrs. utilisation and most of the aircraft except Twin Otter, B-99 and Skyvan will break even/make profit at 2000 hrs. utilisation.

44. In tables 3(a) to 3(g), annual profit and loss statements for the various aircraft are given at three load factors viz. 40%, 60% and 80%. Following points were revealed :-

- (i) At 60% and 80% load factors, Swearingen Metro-II shows the highest profits under all cases.
- (ii) The 40% load factor case presents a mixed picture. In general the Nomad shows the minimum losses for the 'with duties' condition. In the 'without duties' condition, the Nomad loses its advantage.

45. It may be stated that the economic viability of third level air services must be achieved even at relatively low load factors because the actual traffic on these services is not known at present. It is obvious from the above analysis that the following concessions will have to be given to make these services viable :-

1. No customs duties on aircraft, spare engines, spares support and ground and ramp equipment.
2. No sales tax and excise duty on aviation turbine fuel and aviation gasoline.
3. No landing charges.



#### PART - IV

46. The final choice of any aircraft necessarily has to take a total view of all the aspects referred to in the earlier portions namely, cost, comfort, speed, field performance, single engine service ceiling, etc. It will be seen that some of the aircraft get ruled out on the basis of short field performance and on the ability to operate from unprepared runways. A greater emphasis is being laid on these two parameters as the cost of the entire project would change substantially if we have to provide all weather airports with long runways for all altitudes and temperatures and would restrict the growth of the operations. This leaves the following aircraft namely Twin Otter, Nomad and Short Skyvan. The above choice eliminates some aircraft which are considered economical from the angle of direct operating cost. For example, the Trislander which is considered the least expensive and having low DOC in "without duties" condition has also been left out. This aircraft has a number of problems viz., its manufacturing programme is plagued by financial and other problems affecting its future. Moreover, the aviation gasoline fuel required for this piston engined aircraft is imported into the country and the availability

of this fuel in the international market is going down considerably in view of its limited demand. The Swearingen Metro has a remarkably low DOC in view of its high block speed. However, this aircraft has had disappointing sales. It has been able to sell only 33 aircraft in about 8 years. It requires a runway of about 1200 m for accelerate-stop distance at ISA +30°C.

47 Among the three i.e. Twin Otter, Short Skyvan and Nomad, the Nomad has a very poor single engine service ceiling. The Short Skyvan has the highest DOC and the highest investment.

48. A suggestion was made whether two types of aircraft, one pressurised and one non-pressurised, could be considered for the third level operation. Third Level Operation basically would need a number of concessions to make this project viable. To have two types of aircraft necessarily would increase the investments and lose the advantages of a single type to achieve low DOC available on a large fleet.

49. Moreover, a pressurised aircraft is not much of a benefit since the time spent at cruise is relatively small in all the short sector distances. For higher altitude operation provision of oxygen could more than meet the requirement in such of these cases where flights are at 10000 ft. (3000 m.). Further, among all the aircraft available for third level operation only one viz. Swearingen Metro is pressurised. As stated earlier, this has had a poor sale with 33 in 8 years and this aircraft is also not capable of short field operations.

#### PART - V

#### INDIGENOUS AVAILABILITY

50. The growth of the Third Level Operation would basically depend upon the availability of indigenously designed and developed aircraft. Most of the aircraft manufacturers have offered licence production of their products, while HAL who have examined this case, have taken a stand that they would prefer a design collaboration as this would add to their capability and for the future growth of industry in the country. This is a very welcome suggestion and should be supported. At the same time, the Government cannot afford to wait till the indigenously developed aircraft is available for the purpose, for commencement of third level operations. It would take at least five years for the production of indigenously developed aircraft to be ready for airline operation even if a decision is taken at this stage to manufacture the aircraft. It will also be in the interest of indigenous design and development if a clearer idea of the market potential is known by that period as in many of the routes the traffic potential cannot be assessed with accuracy at the moment.

51. The Committee was informed that Hindustan Aeronautics Ltd. are already engaged in considering collaboration arrangements regarding designing and developing small capacity

aircraft. In the event of HAL eventually manufacturing such aircraft, this would considerably help augmenting the fleet of third level operations provided the cost is kept low.

52. Reference to these projects has been made in third level operation essentially, because long term planning would be incomplete without an indigenously developed aircraft in the country. As already stated, the start of third level operation must not wait till an indigenously developed aircraft becomes available for operation. It would, however, be essential for HAL to keep the cost of the aircraft low as otherwise, the third level commercial operations would be seriously affected.

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## LIST OF REFERENCES

1. (a) Letter from the De Havilland Aircraft of Canada Limited, July 8, 1977.  
(b) A copy of the telex message from the De Havilland Aircraft of Canada to their agents, Malik Associates.
2. (a) Letter from Swearingen Aviation Corporation dated August 8, 1977.  
(b) Cable from Geneva Office of the Swearingen Aviation Corporation dated June 4, 1978.
3. (a) Letter from Hawker de Havilland Australia Private Limited dated July 12, 1977.  
(b) Cable from Hawker Pacific, the Nomad distributors dated June 9, 1978.
4. (a) Letter from Britton Norman (Bombridge) Limited dated July 12, 1977.  
(b) Cable from Britton Norman dated June 6, 1978.
5. Letter from Shorts Brothers dated April 19, 1978.
6. Letter from Beechcraft dated August 7, 1977.
7. EMB-110 Bandeirante for commuter services in India, December 1977 (Published by Embraer - Empresa Brazileira De Aeronautic S.A.)
8. Technical description - DHC-6 Twin, Otter, Series 300, Aexec 6.1.G.6, issue 17, revision 1, June 1977.
9. DHC-6 Stol Twin Otter - Sales Engineering Report, SER-6-74 (Performance data), April 1976.
10. Flight Manual of Swearingen Metro II, Model SA226-70.
11. Model Specification of Metro II.
12. Nomad N 24A, Preliminary Performance Summary.
13. Trislander Owner's Handbook.
14. Skyvan Operating data Manual, Civil Series 3, Vol. L
15. Type Specification of Skyvan.
16. Beechcraft B-99, Pilots operating manual.
17. Model Specification of B-99, B321981 A, June 1, 1972, revised on April 16, 1974.
18. Type specification of Bandeirante.

Basic for estimating direct operating cost

1. Flight crew

Two flight crew at an annual utilisation of 600 hours with following salary :-

- (a) Pilot Rs. 4000/- p. m (including all allowances)
- (b) Co-pilot Rs. 3000/- p. m. (including all allowances).

2. Depreciation

Life of each of the following items has been assumed to be 15 years with 10 % residual value:

- (a) Aircraft
- (b) Engine and propellers
- (c) Airframe and power plant spares
- (d) Workshop and ramp equipment.

3. Spares

Spares support for airframe and engines has been assumed to be 10 % of the cost of 20 aircraft.

4. Customs duties

The following duties have been assumed :

- (a) 8 % on aircraft
- (b) 15 % on spare engines and propellers
- (c) 25 % on spare support
- (d) 100 % on workshop and ramp equipment.

5. Fuel and oil cost

ATF at Rs. 1.58 per litre (with sales tax and excise)

ATF at Rs. 1.01 per litre (without sales tax and excise)

Aviation Gasoline at Rs. 3.81 per litre (with sales tax & excise)

Aviation Gasoline at Rs. 1.46 per litre (without sales tax and excise).

6. Maintenance cost

Total maintenance and overhaul cost including material has been taken as 25 % of the direct operating cost. Labour Cost has been taken as 80 % of the material cost.

7. Insurance

- (a) Hull insurance as 3 % per annum
- (b) Passenger liability as Rs. 1000 per passenger per year.

8. A sector distance of 200 km has been assumed to determine unit operating cost.
9. For fuel consumption, temperature conditions assumed are ISA + 20°C for climb and ISA 15°C for cruise. For the Trislander and the Bandeirante the temperature conditions are ISA and ISA + 15°C respectively, both in climb and cruise.
10. Taxi, take off, landing time as 5 minutes.
11. Taxi, take off, landing fuel has been taken as follows :-

Twin Otter	19 Kg.
Metro-II	26 Kg.
Nomad II 24A	11 Kg.
B-99	19 Kg.
Skyvan	21 Kg.
Bandeirante	21 Kg.

12. Following cruising altitudes have been taken :

Twin Otter	2133 m (7000 ft.)
Metro-II	2743 m (9000 ft.)
Nomad	2133 m (7000 ft.)
Trislander	2133 m (7000 ft.)
B-99	2438 m (8000 ft.)
Skyvan	2438 m (8000 ft.)
Bandeirante	3048 m (10,000 ft.) Fuel consumption data is not available for any other altitude.

13. A standard Colline Avionics Pack has been added to all the aircraft. The cost of this pack is \$ 35.000. This cost is added to the cost of standard aircraft. It was considered that the question of including autopilot and weather radar could be considered at a latter date and in the light of future developments.
14. Hot section replacement cost as Rs. 1.8 lakhs per replacement.
15. Workshop and ramp equipment at Rs. 15 lakhs for a fleet of 20 aircraft.
16. Freight and Insurance @ 1% of costs of aircraft, spare engines and propellers, spare support, ramp equipment and hot sections replacements.
17. Indirect cost as 10 % of direct cost.
18. No fresh circular has been issued by the Ministry of Finance after the recent devaluation of sterling pound and US dollar. Following exchange rates were given by Custom VI Section of Department of Revenue, Ministry of Finance on telephone :-

1 US\$ = Rs. 8.53

1 £ = Rs. 15.39

TABLE - 1

## LEADING PARTICULARS OF AIRCRAFT CONSIDERED FOR THIRD LEVEL OPERATION

Particulars	Twin Otter	Swearingen Metro-II	Nomad N24A	BN-3 Trislander	Beechcraft B-50	Short Skyvan	Pandejante F11F-110P2
1.	2	3	4	5	6	7	8
1. Max. all up wt. (kg.)	5670	5670	4265	4536	4944	5670	5670
2. Max. landing wt. (kg.)	5580	5570	4174	4536	4944	5670	5450
3. Operating weight Empt. (kg.)	3428	3655	2617	2985	2912	3562	3582
4. Engines	Two P & W PT6A-27	Two TPE-331-3UW-303G	Two Allison Model 250-3178	Three Lycoming 0-540-E4C3	Two P & W PT6A-27 or 28	Two TPE-331-2-201A	Two P & W PT6A-34
5. Engine power	2 x 620 SHP	2 x 840 SHP	2 x 400 SHP	3 x 260 SHP	2 x 580 SHP	2 x 755 SHP	2 x 750 SHP
6. Max. Seating capacity (excluding crew) and seat pitch (Cm.)	20(76)	19(76)	16	15(74)	15(74)	19(74)	18(81)
7. Baggage capacity (m <sup>3</sup> )	3.57	5.12	1.98	1.50	2.82	-	3.20
8. Fuel capacity (litres)	1502	2453	1018	700	800	1292	1467
9. Total cabin volume (excluding cockpit) (m <sup>3</sup> )	10.87	13.87	13.3	8.8 (including cockpit)	-	22.08	20.5
10. Cabin length (m)	5.6	10.08	6.5	6.14	5.7	5.7	5.7
11. Cabin height (m)	1.5	1.45	1.57	1.27	1.45	1.98	1.60
12. Cabin width (m)	1.32	1.57	1.30	1.09	1.40	1.98	1.60
13. Take off distance over 15 m (ISA + 3°C & S. L.) at max. T.O. wt. (m)	610	610	716	731	1121	731	850 (ISA + 15°C)

TABLE - 1 (Contd.)

LEADING PARTICULARS OF AIRCRAFT CONSIDERED FOR THIRD LEVEL OPERATION

Particulars	Twin Otter	Sweatringen Metro-II	Nomad N24A	BN-3 Trislander	Peechcraft B-99	Short Skyvan	Bandeirante EMP-110P2
1	2	3	4	5	6	7	8
14. Landing distance from 15 m (ISA + 30°C & S. L.) at max. landing wt. (m)	344	640 (R.THR) 1189 (No.R.THR)	518	480	909	481	815
15. Accelerated stop distance max. T.O. weight (m)	747	1188	-	-	1158	731	1300 (ISA + 15°C)
16. Single Engine service (m) ceiling (R/C 15m/min. at ISA + 20°C) max. T.O. wt.	2865	2825	853	2590	2743	2438	2969*
17. Range with max. payload (45 mts. holding VFR operations) (km.)	530	534	490	450**	1045	495	737***
18. Block speed for 200 km. stage length	267	405	250	240**	353	255	300***
19. Block time (minutes)	45	29.6	48	50**	34	47	40***
20. Block fuel (litres)	258	211	150	109**	189	247	196***
21. Tyre pressure (p. s. i.)	32/38	85/100	43/38	29/45	50/90	40/40	80/85
22. Wing span (m)	19.8	14.10	16.46	16.15	13.98	19.78	15.30
23. Wing area (m <sup>2</sup> )	39.0	25.81	30.10	31.31	26.01	35.10	29.0
24. Wing loading (kg/m <sup>2</sup> )	145.38	219.68	138.7	144.87	190.08	161.53	195.51
25. Power loading:							
kg / KW	5.83	4.04	7.0	7.79	4.87	5.31	5.59
kg / HP	4.35	3.01	5.22	5.81	3.63	3.96	4.17
26. Aspect Ratio	10.0	7.71	9.11	7.95	7.51	11.0	8.89

\* - At ISA + 15°C and 5300 kg. weight.

\*\* - At ISA condition.

\*\*\* - At ISA + 15°C condition.

TABLE - 2 (a)  
HOURLY OPERATING COST (IN RUPEES) FOR AIRCRAFT CONSIDERED  
FOR III LEVEL OPERATIONS  
( UTILIZATION - 1500 HRS. )

Cost Items	Without duties, taxes and Civil Aviation charges						With duties, taxes and Civil Aviation charges							
	Twin Otter	Metro II	Nomad 24A	BN-3 Trislander	Beech B-99	Sky-van	Twin Otter	Bandera-nante	Metro II	Nomad 24A	BN-3 Trislander	Beech B-99	Sky-van	Bandera-nante
1.	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Fuel & Oil	362	450	197	197	350	331	309	567	705	308	517	546	518	488
2. Landing	-	-	-	-	-	-	-	30	60	22	30	40	22	40
3. Maintenance :														
(a) Material	169	210	122	107	195	188	177	220	299	153	177	249	237	225
(b) Labour	136	168	98	86	156	151	142	176	239	122	141	199	189	180
4. Crew	140	140	140	140	140	140	140	140	140	140	140	140	140	140
5. Insurance :														
(a) Hull	155	188	108	71	165	157	147	167	203	117	77	77	169	157
(b) Pax. liability	13	13	11	11	10	13	12	13	13	11	11	11	10	13
6. Depreciation	369	449	257	162	388	377	349	408	496	285	181	429	417	386
7. Direct Op. cost	1385	1653	951	774	1404	1357	1276	1767	2155	1177	1274	1792	1705	1624
8. Indirect Op. cost @ 10% of D.O.C.	138	165	95	77	140	136	128	177	216	118	127	179	170	162
9. Total Op. cost	1523	1818	1045	851	1544	1493	1404	1944	2371	1295	1401	1971	1875	1786
10. Total Op. cost per ASK	0.28	0.24	0.26	0.22	0.29	0.31	0.26	0.36	0.31	0.32	0.36	0.37	0.38	0.33

TABLE - 2 (b)

HOURLY OPERATING COST (IN RUPEES) FOR AIRCRAFT CONSIDERED  
FOR III LEVEL OPERATIONS

( UTILIZATION - 2000 HRS. )

Cost Items	Without duties, taxes and Civil Aviation charges						With duties, taxes and Civil Aviation charges					
	Twin Otter	Mietro II	Mornadi 24A	BN-3 Trislander	Deecin B-99	Skyvan	Twin Otter	Mietro II	BN-3 24A	Deecin B-99	Skyvan	Bendirante
1	2	3	4	5	6	7	8	9	10	11	12	13
1. Fuel & Oil	362	450	197	197	350	331	309	567	705	300	517	546
2. Landing	-	-	-	-	-	-	-	30	60	22	30	40
3. Maintenance :												
(a) Material	167	200	114	96	169	163	154	217	266	144	164	220
(b) Labour	134	159	92	77	135	130	123	174	214	116	132	176
4. Crew	140	140	140	140	140	140	140	140	140	140	140	140
5. Insurance :												
(a) Hull	116	141	81	53	124	118	110	125	152	88	58	134
(b) Pax. Liability	10	10	8	8	8	10	9	10	10	8	8	8
6. Depreciation	277	337	193	121	291	283	262	306	372	214	136	322
7. Direct operating cost	1206	1437	825	692	1217	1175	1107	1571	1919	1040	1185	1586
8. Indirect operating cost @ 10% of D.O.C.	121	144	82	69	122	117	111	157	192	104	118	159
9. Total operating cost	1327	1581	907	761	1339	1292	1218	1728	2111	1144	1303	1745
10. Total operating cost per A.S.K.	0.25	0.20	0.23	0.20	0.25	0.27	0.22	0.32	0.27	0.29	0.34	0.34
												0.29

TABLE - 3 (a)

ANNUAL PROFIT/LOSS (Rs. in Crores)

TWIN OTTER

Load Factors	Utilization : 1500 hrs.		Utilization : 2000 hrs.	
	Without duties and taxes	With duties and taxes	Without duties and taxes	With duties and taxes
1	2	3	4	5
40 %	- 0.641	- 1.922	- 0.214	- 1.709
60 %	+ 1.282	0	+ 2.350	+ 0.854
80 %	+ 3.204	+ 1.922	+ 4.913	+ 3.418

TABLE - 3(b)

ANNUAL PROFIT/LOSS (Rs. in Crores)

METRO-II

Load Factors	Utilization 1500 hrs.		Utilization : 2000 hrs.	
	Without duties and taxes	With duties and taxes	Without duties and taxes	With duties and taxes
1	2	3	4	5
40 %	-	- 1.616	+ 1.231	- 0.923
60 %	+ 2.770	+ 1.154	+ 4.925	+ 2.770
80 %	+ 5.540	+ 3.924	+ 8.618	+ 6.464

TABLE - 3 (c)  
ANNUAL PROFIT/LOSS (Rs. in Crores)  
NOMAD NZ4A

Load Factors	Utilization : 1500 hrs.		Utilization : 2000 hrs.	
	Without duties and taxes	With duties and taxes	Without duties and taxes	With duties and taxes
1	2	3	4	5
40 %	-0.240	-0.96	+0.160	-0.800
60 %	+1.200	+0.48	+2.080	+1.120
80 %	+2.640	+1.92	+4.000	+3.040

TABLE - 3 (d)  
ANNUAL PROFIT/LOSS (Rs. in Crores)  
TRISLANDER

Load Factor	Utilization : 1500 hrs.		Utilization : 2000 hrs.	
	Without duties and taxes	With duties and taxes	Without duties and taxes	With duties and taxes
1	2	3	4	5
40 %	+0.230	-1.382	+0.614	-1.536
60 %	+1.612	0	+2.458	+0.307
80 %	+2.990	+1.382	+4.301	+2.150

TABLE - 3 (e)

ANNUAL PROFIT/LOSS (Rs. in Crores)

BEECHCRAFT B-99

Load Factors	Utilization : 1500 hrs.		Utilization : 2000 hrs.	
	Without duties and taxes	With duties and taxes	Without duties and taxes	With duties and taxes
1	2	3	4	5
40 %	- 0.794	- 2.065	- 0.212	- 1.906
60 %	+ 1.122	- 0.159	+ 2.329	+ 0.635
80 %	+ 3.018	+ 1.747	+ 4.871	+ 3.177

TABLE - 3 (f)

ANNUAL PROFIT/LOSS (Rs. in Crores)

SKYVAN

सर्वानन्द उपनि

Load Factors	Utilization : 1500 hrs.		Utilization : 2000 hrs.	
	Without duties and taxes	With duties and taxes	Without duties and taxes	With duties and taxes
1	2	3	4	5
40 %	- 1.017	- 2.035	- 0.581	- 1.938
60 %	+ 0.727	- 0.291	+ 1.744	+ 0.388
80 %	+ 2.471	+ 1.453	+ 4.069	+ 2.713

TABLE - 3 (g)

ANNUAL PROFIT/LOSS (Rs. in Crores)

BANDEIRANTE EMB-110P2

Load Factors	Utilization : 1500 hrs.		Utilization : 2000 hrs.	
	Without duties and taxes	With duties and taxes	Without duties and taxes	With duties and taxes
1	2	3	4	5
40 %	- 0.324	- 1.458	+ 0.432	- 1.080
60 %	+ 1.620	+ 0.486	+ 3.024	+ 1.512
80 %	+ 3.564	+ 2.430	+ 5.616	+ 4.104



CAPITAL COST OF TWIN OTTER TURBOPROP AIRCRAFT

1. Cost of complete aircraft	\$ 906,000 U.S.
2. Cost of one power plant	\$ 145,200 U.S.

<u>CAPITAL COST</u>	<u>Rs. in Lakhs</u>
1. Cost of 20 aircraft	1545.6
2. Cost of 10 spare engines	123.91
3. Cost of 10 spare propellers	
4. Cost of 5 hot section replacement	9.00
5. Cost of spare support @ 10 % of aircraft fly away price	154.56
6. Workshop and ramp equipment	15.00
7. Training, representation and delivery at \$ 5000 per aircraft	8.53
8. Freight and Insurance	18.48
9. Customs duty:	
(a) Aircraft at 8 %	123.65
(b) Engines and props at 15 %	18.59
(c) Spare support at 25 %	38.64
(d) Ramp and workshop equipments at 100 %	15.00
10. Total Capital Cost	2070.96
Total Capital Cost without C. D.	1875.08

CAPITAL COST OF SWEARINGEN METRO - II AIRCRAFT

1. Cost of complete aircraft	\$ 1100,000 U.S.
2. Cost of one engine	\$ 185,000 U.S.
3. Cost of one propeller	\$ included in engine price.

CAPITAL COSTRs. in Lakhs

1. Cost of 20 aircraft	1876.60
2. Cost of 10 spare engines	157.80
3. Cost of 10 spare propellers	Included in engine cost.
4. Cost of 5 hot section replacement	9.00
5. Cost of spare support @ 10 % flyaway price of the aircraft	187.66
6. Workshop and ramp equipment	15.00
7. Training, representation and delivery at \$ 5000 per aircraft	8.53
8. Freight and Insurance	22.46
9. Customs duty:	
(a) Aircraft at 8 %	150.13
(b) Engines and props at 15 %	23.67
(c) Spare support at 25 %	46.91
(d) Ramp and workshop equipment at 100 %	15.00
10. Total capital cost	2512.76
Total capital cost without customs duty	2277.05



सत्यमेव जयते

CAPITAL COST OF NOMAD - 24A AIRCRAFT

1. Cost of complete aircraft	\$ 640,000 U.S.
2. Cost of one engine	\$ 69,000 U.S.
3. Cost of one propeller	\$ 3,200 U.S.

<u>CAPITAL COST</u>	<u>Rs. in Lakhs</u>
1. Cost of 20 aircraft	1091.80
2. Cost of 10 spare engines	58.86
3. Cost of 10 spare propellers	2.73
4. Cost of 5 hot section replacement	9.00
5. Cost of spare support @ 10 % of aircraft flyaway price	109.18
6. Workshop and ramp equipment	15.00
7. Training representative and delivery at \$ 5000 per aircraft	8.53
8. Freight and Insurance	12.87
9. Customs duty:	
(a) Aircraft at 8 %	87.34
(b) Engines and props at 15 %	9.24
(c) Spare support at 25 %	27.30
(d) Ramp and workshop equipment at 100 %	15.00
10. Total Capital Cost	1446.84
Total capital cost without customs duty	1307.97



CAPITAL COST OF BN-3 TRISLANDER AIRCRAFT

1. Cost of complete aircraft	\$ 418, 625 U.S.
2. Cost of one engine	\$ 13, 350 U.S.
3. Cost of one propeller	\$ 1, 775 U.S.

CAPITAL COST Rs. in Lakhs

1. Cost of 20 aircraft	714.17
2. Cost of 10 spare engines	11.34
3. Cost of 10 spare propellers	1.51
4. Cost of spare support @ 10 % of aircraft flyaway price	71.42
5. Workshop and ramp equipment	15.00
6. Training, representative and delivery at \$ 5000 per aircraft	8.53
7. Freight and Insurance	8.13
8. Customs duty:	
(a) Aircraft at 8 %	57.13
(b) Engines and props at 15 %	1.93
(c) Spare support at 25 %	17.85
(d) Ramp and workshop equipment at 100 %	15.00
9. Total Capital Cost	922.00
Total capital cost without Customs Duty	830.09



CAPITAL COST OF BEECHCRAFT B-99 AIRCRAFT

1. Cost of complete aircraft	\$ 972,000 U.S.
2. Cost of one engine	\$ 104,976 U.S.
3. Cost of one propeller	\$ 3,803 U.S.

CAPITAL COSTRs.in Lakhs

1. Cost of 20 aircraft	1658.23
2. Cost of 10 spare engines	89.54
3. Cost of 10 spare propellers	3.24
4. Cost of 5 hot section replacement	9.00
5. Cost of spare support @ 10 % of aircraft flyaway price.	165.82
6. Workshop and ramp equipment	15.00
7. Training, representation and delivery at \$ 5000 per aircraft	8.53
8. Freight and Insurance	19.41
9. Customs duty:	
(a) Aircraft at 8 %	132.66
(b) Engine and props at 15 %	13.91
(c) Spare support at 25 %	41.45
(d) Ramp and workshop equipment at 100 %	15.00
10. Total project cost	2171.79
Total project cost without Customs duty	1968.77

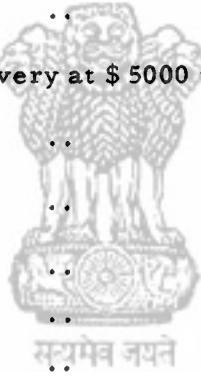


CAPITAL COST OF SHORT SKYVAN AIRCRAFT

1. Cost of complete aircraft	..	..	\$ 919, 080 U.S.
2. Cost of one engine	..	..	\$ 162, 695 U.S.
3. Cost of one propeller	..	..	included in the engine price.

CAPITAL COST Rs. in Lakhs

1. Cost of 20 aircraft	..	..	1567.90
2. Cost of 10 spare engines	..	..	138.78
3. Cost of 10 spare propellers	..	..	9.00
4. Cost of spare support @ 10 % aircraft flyaway price	..	..	156.79
5. Workshop and ramp equipment	..	..	15.00
6. Training, representation and delivery at \$ 5000 per aircraft			8.53
7. Freight and Insurance	..	..	18.87
8. Customs duty:			
(a) Aircraft at 8 %	..	..	125.44
(b) Engines and props at 15 %	..	..	20.81
(c) Spare support at 25 %	..	..	39.20
(d) Ramp and workshop equipment at 100 %	..	..	15.00
9. Total capital cost	..	..	2115.32
<b>Total capital cost without customs duty</b>			<b>1914.87</b>



CAPITAL COST OF BENDEIRANTE AIRCRAFT

1. Cost of complete aircraft	\$ 861, 570 U.S.
2. Cost of one engine	\$ 115, 802 U.S.
3. Cost of one propeller	\$ 5, 032 U.S.

CAPITAL COSTRs. in Lakhs

1. Cost of 20 aircraft	1469. 80
2. Cost of 10 spare engines	98. 78
3. Cost of 10 spare propellers	4. 29
4. Cost of 5 hot section replacement	9. 00
5. Cost of spare support @ 10 % of aircraft flyaway price	146. 98
6. Workshop and ramp equipment	15. 00
7. Training, representation and delivery at \$ 5000 per aircraft	8. 53
8. Freight and Insurance	17. 43
9. Customs duty:	
(a) Aircraft at 8 %	117. 58
(b) Engines and props at 15 %	15. 46
(c) Spare support at 25 %	36. 74
(d) Ramp and workshop equipment at 100 %	15. 00
10. Total capital cost	1954. 59
Total capital cost without customs duty	1769. 81



## CHAPTER - VIII

### PROJECTIONS OF ESTIMATED INCOME EXPENDITURE AND PROFIT/LOSS

It has been brought out earlier that the traffic density on the Third Level network will be low especially, in the beginning. It is expected that the traffic will grow at a moderate rate in the initial years of operations and it is only after about three years that the operations will make profits. In Chapter VII, estimates of annual profit/loss in respect of each aircraft are given at three figures of passenger load factors, based on the current estimated costs of operations. In other words the profit/loss statements are valid only for the first year of operations. As a result of general escalation in the cost of materials and salaries of employees (annual increments, dearness allowance, etc.) the costs of operations are also likely to become higher. Thus these factors have to be accounted for in estimating the projected income, expenditure etc. for these operations.

2. The following assumptions have been made in estimating future income, expenditure and profit/loss :-

1. The Operations will breakeven in the 4th year.
2. The passenger traffic growth rate will be 11% per annum.
3. Following escalation rates per annum are expected in the various items of operating cost :-

i) Fuel and Oil	Nil*
ii) Labour	10%
iii) Materials	10%
iv) Flight crew	10%
v) Depreciation	Nil
vi) Insurance	Nil

\* Any increase in fuel/oil price will be adjusted by an increase in fare.

3. The fare will be around Rs. 0.60 per ASK (Available Seat Kilometres).
4. The traffic assumed represents an average traffic of all the routes in the network.
5. It may be mentioned that the traffic generated has been taken as independent of the size of the aircraft used in the operations. This would imply that the average traffic will remain the same irrespective of the aircraft. Keeping this point in view, it could be seen that the point of time of breakeven for the various aircraft would occur at slightly different times because of different costs of operation or different sizes or both.
6. The demand for cargo has not been taken into account since these aircraft have very little cargo capacity over and above full passenger capacity. However, in the initial years

traffic potential assumed is comparatively small. There would, therefore, be scope for cargo capacity during this period. This would vary depending upon whether the specific aircraft has smaller or larger passenger capacity. In other words, cargo potential would be more for bigger capacity aircraft than for small one. The effect of additional revenue on account of cargo has not been taken into account as the potential for cargo uplift is an unknown factor from these stations.

7. In the present analysis a typical aircraft (Twin Otter) has been taken to establish the base traffic and the breakeven load factor in the 4th year. (The load factor may not be identical to the other aircraft for breaking even. To illustrate the point future projections for Skyvan have also been made using the same base traffic assumed above). In the attached table, the projections of income, expenditure and profit/loss in respect of Twin Otter and Skyvan have been shown for five years. The results are based on an annual utilisation of 2000 hours per aircraft and complete exemption from duties and taxes. Broadly, the following points can be noted :-

- (i) The total operating cost goes up by about 4% per year.
- (ii) The cost per ASK goes up by about Rs. 0.01 per year.
- (iii) In the first year, the loss may be about Rs. 82 to 88 lakhs. This will come down to about Rs. 20 to 30 lakhs in the third year.



APPENDIX VII - A

PROJECTED ESTIMATES OF INCOME, EXPENDITURE  
AND PROFIT/LOSS FOR FIVE YEARS

Sr. No.	Item	Twin Otter				Skyvan					
		1st Year	2nd Year	3rd Year	4th Year	5th Year	1st Year	2nd Year	3rd Year	4th Year	5th Year
1	Total operating cost per hour per aircraft (Rs.)	1327	1375	1428	1487	1551	1292	1340	1392	1450	1514
2	Operating cost per ASK (Rs.)	0.25	0.26	0.27	0.28	0.29	0.27	0.28	0.29	0.30	0.31
3	Fare per ASK (Rs.)	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
4	Average expected passengers per flight	7	7.8	8.6	9.6	10.6	7.	7.8	8.6	9.6	10.6
5	Total operating expenses (Rs. in crores)	5.308	5.500	5.712	5.948	6.204	5.168	5.360	5.568	5.800	6.056
6	Total operating Revenue (Rs. in crores)	4.486	4.998	5.511	6.152	6.792	4.284	4.774	5.263	5.875	6.487
7	Profit/Loss (Rs. in crores)	-0.822	-0.502	-0.201	+0.204	+0.588	-0.884	-0.586	-0.305	+0.075	+0.431

## CHAPTER - IX

### NEED FOR REPAYABLE LOANS FROM GOVERNMENT

The capital cost and the method of financing the Third Level project are discussed in Chapter VII. The Civil Aviation Development Fund has at present an amount of only Rs. 3.23 crores approximately. By the proposed levy of "embarkation charges" from passengers travelling by Indian Airlines, the necessary funds would be created. Meanwhile, however, the need to set up an airline subsidiary to Indian Airlines is self-evident although the entire amount of Rs. 19 crores (free of customs duty) estimated for setting up this airline would not be necessary initially.

2. While the working capital required by Indian Airlines for use by its subsidiary airline can easily be met from the Civil Aviation Development Fund, the balance available in that Fund could not be sufficient to purchase the required number of aircraft etc. initially. The gap between the amount available in the Civil Aviation Development Fund and the amount required to start Third Level Operations in the first year, may be filled by Government advancing a loan to Indian Airlines for use by its subsidiary pending availability of funds which would be raised by levy of "embarkation charges" from domestic passengers. Also, the capital required for the Third Level project in the initial stages may fall short of the amount collected as "embarkation charges" and apportioned for Third Level air services in the first year. In that event also, Government may have to advance a loan to Indian Airlines.

3. The loans thus advanced to Indian Airlines may or may not be free of interest. The Committee's recommendation is that the loans thus advanced by Government should be free of interest. If, however, interest must be paid on the loans advanced by the Government, the loan amount together with interest will be repaid to Government by Indian Airlines out of the funds made available to Indian Airlines for use on Third Level air services. It is estimated that an amount of approximately Rs. 143 crores will be collected as "embarkation charges" during the first 10 years from domestic passengers and that an amount equal to Rs. 100 crores would be made available to Indian Airlines in a phased manner. Repayment of loans together with interest, if any, to Government would not, therefore, present any problem.

## CHAPTER - X

### PHASING OF THIRD LEVEL OPERATIONS

As observed in Chapter II, more and more population centres are to be added to the domestic air network in order to meet the economic and social objectives underlying the Third Level air services. In the selection of new population centres, it is needless to say that adequacy of existing means of transportation, the importance of the location for tourists and the industrial and commercial importance of the town/city are factors to be taken note of while deciding on priorities in a phased programme of implementation. Keeping these and the other relevant factors referred to in Chapter II in view, the Committee has selected 50 new population centres to be linked by Third Level air services in the first phase. No doubt, the 50 new population centres do not all have aerodromes ready for commencement of Third Level air services immediately. However, nearly 80 % of these population centres have aerodromes which are suitable for Third Level air services either immediately or within a period of one year. At the remaining population centres, the development of ground infrastructure may take a longer period of time. The 50 new population centres selected by the Committee for Third Level air services in the first phase are indicated below:-

1. Abu Road	18. Jamshedpur	35. Pashigat
2. Aizawl	19. Jullundur	36. Pondicherry
3. Ajmer	20. Kandla	37. Puri
4. Along	21. Kanha	38. Raichur
5. Bikaner	22. Mithapur	39. Rajahmundry
6. Calicut	23. Karnal	40. Ramanathapuram
7. Cooch-Behar	24. Kavaratti	41. Ratnagiri
8. Cuddapah	25. Tezu	42. Rourkela
9. Daborijo	26. Kolhapur	43. Rupsi
10. Dehra Dun	27. Kota	44. Shillong
11. Diu	28. Kulu	45. Simla
12. Gangtok	29. Ludhiana	46. Surat
13. Gaya	30. Muzzaferpur	47. Thanjavur
14. Hubli Dharwar	31. Amreli	48. Tuticorin
15. Itanagar	32. Mysore	49. Warangal
16. Jagdalpur	33. Nanded	50. Ziro
17. Jaisalmer	34. Pantnagar	

2. In order to get the aerodromes serving these population centres ready for Third Level operations, a total expenditure of about Rs. 18 crores is involved spread over a period of about

3 years. In the next phase, several more new population centres may be linked by air and added to the domestic air network. Some of the routes where Third Level air services may begin in the first phase, may after a period of time call for operations in the Second Level, depending on the extent to which the routes may be developed. The traffic demands on some of those routes might increase in course of time requiring introduction of larger capacity aircraft. This does not mean that the type of aircraft which may be purchased now for commencement of Third Level air services would be surplus to requirement if some of the routes at a later stage qualify for upgradation to the second level. Since the scheme of Third Level air services linking up new population centres involves an ever-widening area, it will be necessary to augment in due course the fleet of 20 aircraft required for Third Level operation in the first phase. It may also be necessary to have still larger capacity aircraft to serve some of the population centres originally linked by Third Level air services depending upon the speed of development and growth of traffic demands after a lapse of few years.

3. In Appendix A to this Chapter, the 50 aerodromes proposed to be linked by Third Level air services, together with justification in each case, are indicated in some detail. Details of existing facilities were available and the ground infrastructure required to be provided/augmented are given in Appendix B. Overall expenditure of works outlay for each of the 50 aerodromes is given in Section 3 of Appendix A. Thereafter illustrative examples of the routes to be operated keeping in view the number of aircraft to be based conveniently at a particular aerodrome and the number of hours of daily utilisation of aircraft etc. are also given. These details, however, as regards the routes, number of aircraft to be based at a particular point and the daily utilisation of each aircraft are to be regarded as illustrative rather than specific. The new airline which would be a subsidiary of Indian Airlines would and should have the latitude to decide these matters in coordination with Indian Airlines when the actual operations commence, with a view to providing appropriate air services linking these new population centres and also with a view to providing connecting services on Indian Airline sectors in such a manner that the timetables/schedules operated by Indian Airlines and the subsidiary airline are well coordinated.

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**SELECTION OF PLACES  
TO BE COVERED BY  
THIRD LEVEL AIR SERVICES**



I N D E X

<u>Station</u>	<u>Sr. No.</u>	<u>Station</u>	<u>Sr. No.</u>
Abu Road	28	Kota	27
Aizawl	1	Kozhikode (Calicut)	40
Ajmer	24	Kulu	21
Along	4	Ludhiana	22
Amreli	29	Mizzafarpur	15
Bikaner	26	Mysore	37
Cooch-Behar	11	Nanded	36
Cuddapah	45	Pantnagar	17
Daborijo	7	Passighat	8
Dehra Dun	18	Pondicherry	44
Diu	33	Puri	12
Gangtok	9	Raichur	39
Gaya	14	Rajahmundry	47
Hubli Dharwar	38	Ramanathapuram	40
Itanagar	3	Ratnagiri	34
Jagdalpur	19	Rourkela	13
Jaisalmer	25	Rapsi	10
Jamshedpur	16	Shillong	2
Jullundur	23	Simla	20
Kandla	31	Surat	32
Kanha	48	Tezu	6
Mithapur	30	Thanjavur	42
Karnal	19	Tuticorin	43
Kavaratti	50	Warangal	46
Kolhapur	35	Ziro	5



SELECTION OF PLACES TO BE COVERED  
BY THIRD LEVEL AIR SERVICES

1. INTRODUCTION:

The Committee at its meeting held on 19. 5. 1978 considered a large number of towns/places for assessing their suitability for third level operation. The following criteria were applied for determining their suitability:-

- (i) Does the place suffer from lack of adequate transportation? Is the place far removed from the rest of the country both geographically and also from the point of view of transportation? Is there a possibility of the lack of communication leading to a sense of isolation among the people of the area? Is there a need for greater effort at bringing the people of the area closer to the national mainstream?
- (ii) Does the place attract tourists? Does the place have potential for being developed as a tourist attraction?
- (iii) Does the place have significant industrial and commercial importance which is likely to justify air services to the place? Is there a possibility of further economic growth and development of the place by introduction of an air service to it?

On the basis of the above criteria, 50 places were selected for third level air operations in the first phase.\*



\*In the next phase several more population centres like Mahabalipuram, Kenyakumari, Bilaspur, Deesa, Vellore, Kailashahar - and indeed many more along with a network serving the Andaman Nicobar group of Islands will need to be included.

These places are listed below :-

MIZORAM

1. Aizawl.

MEGHALAYA

1. Shillong

ARUNACHAL PRADESH

1. Itanagar

2. Along

3. Ziro

4. Tezu

5. Daborijo

6. Passighat

SIKKIM

1. Gangtok

ASSAM

1. Rupsi

WEST BENGAL

1. Cooch Behar

ORISSA

1. Puri

2. Rourkela

BIHAR

1. Gaya

2. Muzaffarpur

3. Jamshedpur

UTTAR PRADESH

1. Pantnagar

2. Dehra Dun

HARYANA

1. Karnal

HIMACHAL PRADESH

1. Simla

2. Kulu

PUNJAB

1. Ludhiana

2. Jullundur



RAJASTHAN

1. Ajmer

2. Jaisalmer

3. Bikaner

4. Kota

5. Abu Road

GUJARAT

1. Amreli

2. Mithapur

3. Kandla

4. Surat

GOA, DAMAN & DIU

1. Diu

MAHARASHTRA

1. Ratnagiri

2. Kolhapur

3. Nanded

KARNATAKA

1. Mysore

2. Hubli-Dharwar

3. Raichur

KERALA

1. Kozhikode (Calicut)

TAMIL NADU

1. Ramnathapuram

2. Thanjavur

3. Tuticorin

PONDICHERRY

1. Pondicherry

ANDHRA PRADESH

1. Cuddapah

2. Warangal

3. Rajahmundry

MADHYA PRADESH

1. Kanha

2. Jagdalpur

LAKSHADWEEP

1. Kavaratti

The scheduling/route network proposed for Third Level services is presented in Table 1; it may however be emphasised that this is only illustrative. Detailed justification for the selection of the 50 places is given in Section 2.

Overall expenditure on works outlay at each airport is given in Section 3.

Based on the facilities available at the various places and the time scale for bringing these facilities to the requisite standard, two stages would be needed within the first phase. These stages are given in Section 4. This staging however is tentative. The actual staging will have to be done based on the availability of resources, the actual costs and time required for the works and the needs of the various places.

2. DETAILED JUSTIFICATION:

The detailed justification for the 50 places/airports is given on the following pages.



1. Aizawl

Aizawl is the capital of the Union Territory of Mizoram. Mizoram lies straddled between Bangladesh and Burma. It is one of the farthest flung areas of the country. Being located in a strategic area and having international borders, the importance of Mizoram to the national security is obvious. However, the communication system linking Mizoram with the rest of the country is extremely poor due to the nature of the terrain in this region. Large and fast rivers and high mountains have contributed to the lack of communication. Aizawl has only one good road linking it with the rest of India. This road connects Aizawl with Silchar. Even though the air distance between the two places is only about 110 km (which can be covered even by a low speed aircraft in about half an hour), the time taken for the road journey between Silchar and Aizawl is about 7 hours. Besides, this road is subject to dislocation due to landslides and damage due to rains common in this area. At present no place in Mizoram is linked by air. This fact alone should qualify Aizawl for inclusion in the third level system.

In spite of the difficult living conditions and their isolation, it is remarkable that the people of Aizawl have developed culturally and educationally to the extent that there are 18 periodicals (dailies etc.) published regularly from Aizawl. Education has spread very wide in Mizoram. Thousands of students from Mizoram also go to Shillong for further studies. This traffic can be captured by third level air services. On all these counts Aizawl has a very strong case for third level air services.

The details of the airport are given below :-

(i) Name of the airport	 संघमेत नियन्ते	- Turiat
(ii) Owned by		- IAF
(iii) Airport elevation		- 305 m
(iv) Runway length available		- 1372 m
(v) Type of runway		- Asphalt
(vi) Navigational aids available		- VHF, R/T
(vii) Terminal building available		- Small building
(viii) Fire fighting equipment available		- Nil
(ix) Overall expenditure on works outlay		- Rs. 35 lakhs

2. Shillong

Shillong is the capital of the State of Meghalaya. It is also the headquarters of the North Eastern Council. The population of Shillong is about 1 lakh. Transport in Meghalaya is relatively backward in that the only mode of transportation is by road; there are no railways. There is also no air service linking Shillong with the rest of India. The nearest place served by air is Gauhati 104 km away. This is a very major handicap to the growth and development of Meghalaya in general and Shillong in particular. Because it is a capital of the state and also the Zonal Headquarters, there is considerable volume of traffic of Government officials, businessmen and others into and out of Shillong.

Shillong is located at an altitude of about 1500 m. Because of its salubrious climate and picturesque scenery, Shillong is a major tourist attraction and is known as the Scotland of the East. Lack of fast and adequate communication has held back tourist traffic from growing fully. No place in Meghalaya is served by air. It is, therefore, clear that there is a strong case for linking Shillong by third level air services.

The details of the airport are given below:-

(i) Name of the airport	- Shillong
(ii) Owned by	- IAF
(iii) Airport elevation	- 1767 m
(iv) Runway length available	- 579 m
(v) Type of runway	- P. S. P.
(vi) Navigational aids available	- NDB, RT, VHF
(vii) Terminal building available	- Nil
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 49 lakhs



3. to 8. ITANAGAR, ALONG, ZIRO, TEZU, DABORIJO AND PASSIGHAT

Itanagar is the capital of the Union Territory of Arunachal Pradesh. The area of Arunachal Pradesh is about 83,000 sq. km. (For comparison it may be mentioned that the area of Kerala is 39,000 sq. km. while that of Haryana is 44,000 sq. km.). It will be seen that Arunachal Pradesh has a very extensive area. Lack of communication due to rough terrain has inhibited economic growth and development. Transportation between the towns of Arunachal Pradesh among themselves and to the adjoining States of the Indian Union is by hazardous roads having hundreds of hairpin bends etc. Besides, these roads suffer from the danger of landslides, damage due to rains etc. For example, the town of Along is isolated from the rest of the country for about 7 months in the year due to rains washing away the roads. It may also be pointed out that Arunachal Pradesh has international borders with China, Burma and Bhutan. This area, therefore, assumes significance from the point of view of the country's security. Any sense of isolation which the people in this area may suffer with respect to the rest of the country should be eliminated by providing adequate and reasonably fast means of transportation. Therefore, for all these important reasons, it becomes the prime responsibility of the Government to reduce this isolation, to keep the people of Arunachal Pradesh involved in the nation's activity and integrate them into the mainstream of the country's life while at the same time giving full scope for the development of their distinctive culture and of their cultural aspirations. Arunachal Pradesh also suffers from the lack of many essential facilities. Itanagar, Ziro, Tezu, Daborijo and Passighat (like most of Arunachal Pradesh) do not have adequate medical and other facilities for the population. For example patients requiring special medical attention have to be taken to places like Mohanbari. However, this is easier said than done as the time taken by road between Along and Mohanbari is about 48 hours - if the road is at all in serviceable condition.

The need for adequate air transportation to fill the gap and to meet all the above requirements is, therefore, obvious. However, due to lack of large airfields and also lack of adequate traffic large transport aircraft are not suitable. Only third level services can fulfil these urgent needs of Arunachal Pradesh.

There is no airport available at Itanagar. The overall expenditure on works outlay at Itanagar to provide the minimum facilities is Rs. 220 lakhs.

The details of the other airports are given below :-

	<u>Along</u>	<u>Ziro</u>	<u>Tezu</u>	<u>Daborijo</u>	<u>Passighat</u>
(i) Name of the Airport	Along	Ziro	Tezu	Daborijo	Passighat
(ii) Owned by	Defence	Defence	Army	Army	DGCA
(iii) Airport Elevation	259 m	1568 m	200 m	266 m	155 m
(iv) Runway length available	1646 m	1219 m	800 m	1000 m	1006 m
(v) Type of runway	Tarmac	Turh	F/W	F/W	PSP
(vi) Navigational aids available	Nil	Nil	Nil	Nil	Nil
(vii) Terminal building available	Nil	Nil	Nil	Nil	Yes
(viii) Fire fighting equipment available	Nil	Nil	Nil	Nil	Nil
(ix) Overall expenditure on works outlay (Rs. in lakhs)	25	46	46	46	25

9. GANGTOK

Being the Capital of Sikkim, Gangtok requires to be connected to neighbouring states from where regular air services to Delhi and other capital cities of the country are available. At present one can reach Gangtok by road from Silliguri after a road journey of about 8-10 hours. The same distance if covered by air will take only about 15 minutes. Since Sikkim, because of its location and its international borders, is a politically sensitive area, it is imperative that the Government should be able to maintain an efficient and effective administration in this State. Sikkim also has great tourist attraction. It can, therefore, draw a large number of tourists. This can be assisted by air services. It is, therefore, obvious that there is adequate justification on many counts for linking Gangtok by third level services.

There is no airport available at Gangtok.

Overall expenditure on works outlay - Rs. 220 lakhs.

10. RUPSI

Rupsi is an important town situated about 200 km. to the west of Gauhati. Rupsi, at present, is not covered by air services. The two nearest places served by the Indian Airlines in this region are Bagdogra and Gauhati which are about 340 km. apart by air. It is clear that there is a large area falling in between which is not covered by air services. This lacuna becomes very significant in view of the fact that this part of the country has very poor surface transport facilities within itself and also with the rest of the country. Because of the fact that Bangladesh is partly interposed between West Bengal on the one side and Assam and Cooch Behar area of West Bengal on the other, ground transportation from north-eastern region to the rest of the country has to take a very circuitous, difficult and time consuming path. This part of the area has a number of game sanctuaries which are a good tourist attraction. In view of the above, it is considered that there is adequate justification for including Rupsi in the third level air system.

Details of the airport are given below:

(i) Name of the Airport	- Rupsi
(ii) Owned by	- DGCA
(iii) Airport elevation	- 40 m.
(iv) Runway length	- 1829 m.
(v) Type of runway	- Concrete
(vi) Navigational aids available	- Nil
(vii) Terminal building available	- Yes
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 20 lakhs.



11. COOCH BEHAR

Cooch Behar is located about 70 km. to the west of Rupsi. It, therefore, suffers from the same disadvantages and problems like lack of transportation as Rupsi. Cooch Behar also has wild life sanctuaries nearby at Jaldapara. The provision of third level air services to Cooch Behar will, therefore, attract businessmen, Government officials, tourists etc. and will also help to overcome the difficulties in ground transportation.

The details of the airport are given below:

(i) Name of the airport	- Cooch Behar
(ii) Owned by	- DGCA
(iii) Airport elevation	- 42 m.
(iv) Runway length available	- 1068 m.
(v) Type of runway	- Tarmac
(vi) Navigational aids available	- Nil
(vii) Terminal Building available	- Yes
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 20 lakhs.

12. PURI

Puri is one of the important pilgrim centre of Hindus. Millions of people go to Puri to worship there throughout the year. Puri is also close to the famous Sun Temple at Konark. It is estimated that five to six thousand foreign tourists visit Puri and Konark every year.\* This is sizable traffic for third level operations. The beach (and the surf) at Puri is one of India's loveliest. These attract a large number of tourists. Bhubaneswar (62 km. from Puri) and Konark from a very attractive triangle for tourists. Provision of third level services to Puri will further boost this area from the tourism angle.

There is no airport available at Puri.

Overall expenditure on works outlay Rs. 45 lakhs.

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\* The numbers of foreign tourists visiting various places given in this report are based on a foreign tourist survey conducted by the Administrative Staff College in 1976-77. The actual number of tourists in future will, it is expected, be higher.

13. OURKELA

Rourkela is one of the major steel towns in India. The population of Rourkela is about 1.7 lakhs. It is necessary to provide fast means of transport connecting this city to the neighbouring steel towns like Jamshedpur, Bokaro, Bhilai to enable senior officials to travel conveniently and expeditiously between these towns. As the head office of SAIL is situated in Delhi, it is necessary to provide fast means of transport between Delhi and Rourkela. Similarly many offices of Hindustan Steel are located in Calcutta and there is, therefore, likelihood of significant volume of traffic between Rourkela and Calcutta. Third level air services will provide the necessary links.

The details of the airport are given below:

(i) Name of the airport	- Rourkela
(ii) Owned by	- Hindustan Steel Ltd.
(iii) Airport elevation	- 199 m.
(iv) Runway length available	- 1830 m.
(v) Type of runway	- Tarmac
(vi) Navigational aids available	- NDB, RT and Telephone links, VHF
(vii) Terminal building available	- Yes
(viii) Fire fighting equipment available	- Yes
(ix) Overall expenditure on works outlay	- Nil



14. GAYA

Gaya is one of the major cities in Bihar. It has a population of 1.8 lakhs. Gaya is doubly sacred as it is one of the foremost Hindu pilgrimage centres in India and also the most sacred of Buddhist centres because Buddha attained enlightenment here (at Bodh Gaya). Nearly 5,000 foreign tourists visit Bodh Gaya every year. Gaya is an important educational centre having a University at Magadh. Many foreign students come here to study ancient history, culture and philosophy. The nearest airport (Patna) is 152 km. from Gaya. Therefore, Gaya can provide adequate traffic both of foreign tourists and businessmen and administrators to justify operations of third level services to Gaya.

The details of the airport are given below:-

(i) Name of the airport	- Gaya
(ii) Owned by	- DGCA
(iii) Airport elevation	- 110 m.
(iv) Runway length available	- 2286 m.
(v) Type of runway	- Concrete/Tarmac
(vi) Navigational aids available	- NDB, RT & Telephone links, VHF.
(vii) Terminal building available	- Yes.
(viii) Fire fighting equipment available	- Yes.
(ix) Overall expenditure on works outlay	- Nil.

15.

### MUZAFFARPUR

Muzaffarpur has a population of 1.26 lakhs. It is the biggest market for textiles, fruits, etc. in northern Bihar. (It exports large quantities of lichi and mango). Muzaffarpur has a number of industries like sugar mills, textile mills, etc. It is also an important trading centre. Consequently, there is likelihood of a good volume of air traffic of businessmen and government officials. It is also an educational centre having a University. Vaishali (one of the sixteen republics which existed about 2000 years ago and is closely connected with Lord Buddha and is, therefore, a place of great tourist importance) is situated about 40 km. from Muzaffarpur. A large number of foreign tourists visit Vaishali every year. Much of this foreign tourist traffic to Vaishali is likely to use third level air services to Muzaffarpur.

The details of the airport are given below:-

(i) Name of the airport	- Muzaffarpur
(ii) Owned by	- DGCA
(iii) Airport elevation	- 53 m.
(iv) Runway length available	- 1219 m.
(v) Type of runway	- Bitumen (1)
(vi) Navigational aids available	- NDB, RT, Telephone links, VHF.
(vii) Terminal building available	- Yes
(viii) Fire fighting equipment available	- Yes
(ix) Overall expenditure on works outlay	- Nil

## 16. JAMSHEDPUR

Jamshedpur has a population of 3.4 lakhs. It is one of the major steel towns of India. Jamshedpur also has many other important industries in addition to the steel mills. These include a vehicle manufacturing factory, a tin plate factory, a steel tube factory, heavy engineering industry and an industrial complex, etc. There is considerable traffic of senior officials of the steel and other industries between Jamshedpur on the one hand and the other steel towns and Calcutta on the other. Copper mines are situated at Dhalbhum, about 44 km. from Jamshedpur. The uranium mines and a uranium refining centre is located at Jaduguda located about 64 km. from Jamshedpur. All this is an indication of the fact that Jamshedpur is one of the major industrial centres in India and of great importance to the prosperity and development of the country. Jamshedpur also has the attractive Manoharpur forest which is visited by a large number of tourists. The nearest place served by I. A. (Ranchi) is about 120 km. away. Based on all these factors, it is felt that Jamshedpur can provide adequate traffic for third level air service to that place.

Details of the airport are given below:-

(i) Name of the airport	- Jamshedpur
(ii) Owned by	- Tata Iron & Steel Company.
(iii) Airport elevation	- 142 m.
(iv) Runway length available	- 1059 m.
(v) Type of runway	- Water bound macadam.
(vi) Navigational aids available	- NDB, RT, Telephone links, VHF
(vii) Terminal building available	- Yes.
(viii) Fire fighting equipment available	- Yes.
(ix) Overall expenditure on works outlay	- Nil.



## 17. PANTNAGAR

Pantnagar is the closest airport to Nainital located about 44 km. away. Pantnagar is also the most convenient airport for Corbett National Park, Ranikhet and other hill stations in the area. This particular area of U.P. has inadequate transportation system because of the difficult terrain. The only mode of transportation is by road and even this is subject to damage by landslides and heavy rains. Therefore, provision of third level air services up to Pantnagar will help indirectly to open up these remote areas and help in their development. Pantnagar has also a large agricultural university. Near Pantnagar is situated the town of Kathgodam which has a large timber industry. Considerable quantity of fruits pass through Pantnagar to the plains. Provision of third level air services will help in the carriage of this freight. Pantnagar serves the whole of Kumaon region. At present the nearest place

served by I. A. is more than 200 km. away. It is, therefore, felt that there would be an adequate traffic from and to this region (officials, tourists, businessmen, etc.) to justify third level air services.

The details of the airport are given below:

(i) Name of the airport	- Pantnagar
(ii) Owned by	- DGCA
(iii) Airport elevation	- 233 m.
(iv) Runway length available	- 1097 m.
(v) Type of runway	- Tarmac
(vi) Navigational aid available	- Nil
(vii) Terminal building available	- Yes
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 18 lakhs.

#### 18. DEHRA DUN

Dehra Dun has a population of 1.6 lakhs. Important government and public sector offices are located here. These include the Forest Research Institute, the Oil and Natural Gas Commission, the Indian Military Academy etc. It also serves as a convenient point for travelling from the plains to Mussoorie, Hardwar, Rishikesh and, in general, to the Garhwal Region. It is found that more than 5000 foreign tourists visit Hardwar/Rishikesh every year. Mussoorie is also one of the biggest hill resorts in India with lakhs of tourists visiting it every year. Provision of air services to Dehra Dun would also help to provide faster transportation from the plains to the Uttar Khand area at least part of the way. In addition to this Dehra Dun is an educational centre. Further, very large industrial undertakings have come up both at Hardwar and Rishikesh. In view of all this a large number of businessmen, administrators, tourists etc. are expected to travel by air to Dehra Dun for onward travel to these places. However, the nearest places served by I. A. are Chandigarh and Delhi which are not convenient. There is, therefore, strong justification for putting Dehra Dun on the air map of India.

There is no airport available at Dehra Dun.

Overall expenditure on works outlay - Rs. 28 lakhs.

19. KARNAL

Karnal is one of the biggest towns in Haryana. Situated midway between Delhi and Chandigarh, Karnal has the National Dairy Research Centre and many industries like a sugar factory and many small industries. No town in Haryana other than Chandigarh is served by air services. Provision of air services to Karnal would meet a long felt want. This is particularly important as Haryana has one of the highest per capita income in this country. It is rich in agriculture and produces a very large quantity of foodgrains. It is being industrialised very rapidly and is also being modernised in the process. It is, therefore, obvious that a large number of businessmen, administrators and others will avail of air travel facilities to Karnal and therefore there is adequate justification for provision of the same.

The details of the airport are given below:

(i) Name of the airport	- Karnal
(ii) Owned by	- State Government
(iii) Airport elevation	- 253 m.
(iv) Runway length available	- 1098 m.
(v) Type of runway	- F/W
(vi) Navigational aid available	- Nil
(vii) Terminal building available	- Nil
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 33 lakhs.



20. SIMLA

Simla is the capital of Himachal Pradesh. It has a population of 55,326. Simla is one of the biggest hill resorts in India and lakhs of tourists visit Simla every year. Many Central Government Offices and Defence Establishments are located in Simla. The Institute of Advanced Studies is also in Simla and a large number of distinguished foreign and Indian scholars, scientists, thinkers and planners visit Simla. Simla is also the point for travel into the interior of Himachal Pradesh by administrators, tourists, businessmen etc. Simla exports large quantity of fruits. The nearest airport Chandigarh is 117 km. away. The time taken for this road/rail journey is considerable as the road/railway has many bends, loops, gradients, etc. There is, therefore, a certainty of getting large air traffic to justify third level air services to Simla.

There is no airport available at Simla.

Overall expenditure on works outlay - Rs. 220 lakhs.

## 21. KULU

Kulu is an important town in Himachal Pradesh and is the terminus of the roadway from the plains. Himachal Pradesh is a region of very rugged terrain. Because of this, the railways have their terminus at Kiratpur situated in the plains and located at about 100 km. from Kulu. Thus the rail head is 100 km. from Kulu while the road terminates at Kulu. The road to Kulu itself is typical of roads in such terrain. Kulu is the place from where tourists go on to Manali, the fine and unspoiled tourist resort. It is relevant to mention here that as many as 4000 foreign tourists visit Manali in a year. Many tourists also stay at Kulu. Provision of air travel up to Kulu will meet the needs of tourists wanting to go to Kulu and Manali. As already pointed out transportation in this area is very inadequate. No place in Himachal Pradesh is served by air. Air service to Kulu will greatly help the local administration as it will bring Kulu closer to the plains and also reduce the travel time to Delhi and other places. Kulu, therefore, deserves to be covered by air for two reasons :-

- (1) Tourism.
- (2) Facilitation of transportation into remote areas for their development and for bringing the people closer to the national mainstream.

The details of the airport are given below:

(i) Name of the airport	-	Bhuntar
(ii) Owned by	-	DGCA
(iii) Airport elevation	-	1084 m.
(iv) Runway length available	-	1128 m.
(v) Type of runway	-	Tarmac
(vi) Navigational aid available	-	NDB, RT & Telephone link available, VHF.
(vii) Terminal building available	-	Yes
(viii) Fire fighting equipment available	-	Nil
(ix) Overall expenditure on works outlay	-	Nil.

## 22. LUDHIANA

The population of Ludhiana is 4 lakhs. It is the premier industrial city in Punjab. Hundreds of industries, large, medium and small including a mini steel plant have been set up at Ludhiana. Much of the hosiery (woollen, synthetics etc.) exports of the country are produced at Ludhiana. Ludhiana also meets a major portion of the country's hosiery requirements. It is not far behind in machine tools and light engineering. Ludhiana also has an Agricultural University. Being located approximately midway between Chandigarh and Amritsar, Ludhiana and its environs have a large and prosperous population to provide the

necessary traffic for air services. Because of its high level of industrialisation, the demand for air travel will be more than what can be met by one service a day of third level operations.

The details of the airport are given below:

(i) Name of the airport	- Ludhiana
(ii) Owned by	- Punjab Govt.
(iii) Airport elevation	- 247 m.
(iv) Runway length available	- 1136 m.
(v) Type of runway	- Concrete
(vi) Navigational aids available	- Nil
(vii) Terminal building available	- Nil
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 27 lakhs.

### 23. JULLUNDUR

Jullundur has a population of 3.3 lakhs. It has a large number of industries. Jullundur is the biggest sports goods manufacturing and exporting centre in India. It also houses a number of defence establishments. Being situated approximately midway between Chandigarh and Amritsar, it is expected to give traffic justifying third level service.

Lakhs of workers from Jullundur district have gone abroad. Their savings contribute a rich income for this area. These people frequently come to Jullundur for sentiments and other reasons and they will also provide adequate traffic for air services to Jullundur.

The details of the airport are given below:-

(i) Name of the airport	- Jullundur
(ii) Owned by	- Flying Club, Jullundur
(iii) Airport elevation	- 236 m.
(iv) Runway length available	- 640 m.
(v) Type of runway	- F/W
(vi) Navigational aids available	- Nil
(vii) Terminal building available	- Nil
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 27 lakhs.

24. AJMER

Ajmer has a population of 2.6 lakhs. It is located about 120 km. south-west of Jaipur. Ajmer is famous for the shrine of the Saint Moinuddin Chishti to which lakhs of Muslim pilgrims from India and abroad go to pray. Pushkar, 10 km. away is a holy lake of Hindus and lakhs of Hindus go there. Ajmer has a machine tool factory and a railway workshop. It also has an industrial estate. Jaipur which is the nearest place served by IA is 132 km. away. It is, therefore, expected that the air traffic will justify air service.

The details of the airport are given below:-

(i) Name of the airport	- Ajmer
(ii) Owned by	- State Govt.
(iii) Airport elevation	- 421 m.
(iv) Runway length available	- 457 m.
(v) Type of runway	- F/W
(vi) Navigational aids available	- Nil
(vii) Terminal building available	- Nil
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 32 lakhs.

25. JAISALMER

Jaisalmer district is situated on the border with Pakistan. Jaisalmer has very attractive Rajput architecture. Because of its location, it did not attract tourist traffic in the past. However, during the past few years there has been a big upsurge of tourist traffic to Jaisalmer. This traffic has developed inspite of absence of air transportation to Jaisalmer from Jaipur, Udaipur, Jodhpur etc. and inspite of the fact that the distances involved are quite large. The distance from Jodhpur which is the nearest IA point is 270 km. It is, therefore, felt that provision of air services to Jaisalmer will boost tourist traffic enormously. Justification for having air services to Jaisalmer is also based on the need for national integration and bringing people of that far flung area closer to the national mainstream. There is therefore, adequate justification for providing air services to Jaisalmer.

The details of the airport are given below:-

(i) Name of the airport	- Jaisalmer
(ii) Owned by	- IAF
(iii) Airport elevation	- 305 m.
(iv) Runway length available	- 2698 m.
(v) Type of runway	- Concrete
(vi) Navigational aids available	- NDB, VHF, R/T Telephone links.
(vii) Terminal building available	- Nil
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 6. lakhs.

26. BIKANER

Bikaner has a population of 1.9 lakhs. It has defence establishments. It also has an industrial estate. Bikaner also is a tourist attraction. The nearest IA station (Jodhpur) is 240 km. away. Considering its population and the above factors, it is clear that it will develop adequate traffic to justify third level air services.

Details of the airport are given below:-

(i) Name of the airport	- Bikaner
(ii) Owned by	- IAF
(iii) Airport elevation	- 215 m.
(iv) Runway length available	- 2745 m.
(v) Type of runway	- Concrete
(vi) Navigational aids available	- NDB, RT, VHF, Telephone links.
(vii) Terminal building available	- Small Building
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 5 lakhs.

27. KOTA

Kota has a population of 2.1 lakhs. Kota has emerged rapidly as a major industrial city of Rajasthan. Many large private sector factories in sophisticated fields like synthetics, plastics, chemicals, cement, mining etc. have been set up here. An important public sector unit is located here. It also has an industrial estate. The atomic power station is also located near Kota. The nearest IA station Jaipur is about 200 km. away. In view of its sizeable population and its significant industrial strength and importance there is definite need for providing air service to Kota.

The details of the airport are given below:-

(i) Name of the airport	- Kota
(ii) Owned by	- DGCA
(iii) Airport elevation	- 273 m.
(iv) Runway length available	- 1000 m.
(v) Type of runway	- Concrete F/W
(vi) Navigational aids available	- NDB, RT, Telephone links, VHF
(vii) Terminal building available	- Yes.
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 6 lakhs.

28. ABU ROAD

Mount Abu is one of the important hill stations in western India. It attracts lakhs of people from Gujarat, Rajasthan and Bombay city. It also has the famous Dilwara temple and many other tourist attractions which draw lakhs of pilgrims and tourists. However, the nearest IA station (Udaipur) is 120 km. away. Abu Road has, therefore, a very strong case for air services.

The details of the airport are given below:-

(i) Name of the airport	- Abu Road
(ii) Owned by	- State Govt.
(iii) Airport elevation	- 267 m.
(iv) Runway length available	- 567 m.
(v) Type of runway	- F/W
(vi) Navigational aids available	- Nil
(vii) Terminal building available	- Nil
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 32 lakhs.

29. AMRELI

Amreli is the only district headquarter town in Gujarat which is not connected by air. Amreli is an important mining centre. Industrially, Amreli has potential for growth in cement, insecticides, paints, plastic goods, leather products, footwear, dairy, ferrous castings, anodised aluminium products, diamond tools etc. There are over 200 small scale industries even now in Amreli district.

The details of the airport are given below:-

(i) Name of the airport	- Amreli
(ii) Owned by	- Gujarat State
(iii) Airport elevation	- 150 m.
(iv) Runway length available	- 1000 m.
(v) Type of runway	- F/W
(vi) Navigational aids available	- Nil
(vii) Terminal Building available	- Nil
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 31 lakhs.

30. MITHAPUR

Mithapur is a model township of a chemical factory and is situated 22 km. from Dwarka. Dwarka is an important pilgrimage place and attracts a large number of tourists. In addition to this, Mithapur township has its industrial importance. It has the biggest soda-ash factory in the country. A large range of chemicals, pharmaceuticals, pesticides, photographic chemicals are also manufactured at Mithapur. There is a major cement factory near Dwarka, and an Indian Navy establishment at Port Okha. Other places of interest nearby are Dwarkadish and the temples of Patrani at Bet Dwarka, Harshad Mata temple, Okha, Nageshwar, Pindara, etc. At present the nearest airports are at Jamnagar and Porbander, approximately 100 km. from Dwarka. The third level services to Mithapur will enhance the tourist traffic to Dwarka by providing them faster means of transport and also meet the needs of industry at Mithapur. Presently the routes connecting Dwarka/Mithapur to Rajkot, Jamnagar etc. are circuitous and a substantial amount of time is spent in the journey.

The details of the airport are given below:-

(i) Name of the airport	- Mithapur
(ii) Owned by	- Tata Chemicals Ltd., Bombay.
(iii) Airport elevation	- 4 m.
(iv) Runway length available	- 1500 m.
(v) Type of runway	- F/W
(vi) Navigational aids available	- Nil
(vii) Terminal building available	- Nil
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 31 lakhs.

### 31. KANDLA

Kandla is situated on the south-eastern coast of Kutch. Kandla port was developed after independence to relieve the congestion at Bombay and to provide an alternative to Bombay for the large cargo requirements of north and west India. Kandla has been also developed as a free trade zone. Kandla ranks as the sixth biggest port in India. An aluminium plant is soon to be set up at Kandla. Kandla has a major problem of transportation with the adjoining Saurashtra region. Though the air distance between Kandla and Jamnagar (in Saurashtra) is only about 60 km., the road and rail have to go around the Little Rann of Kutch and this distance comes to about 400 km. This is, therefore, a big bottleneck for trade and commerce between Kutch and Saurashtra. Because of its position as a major port, there is considerable volume of passenger traffic between Kandla and adjoining places as far as Bombay. Further, a lot of foreign seamen come to Kandla. Very often seamen have to be sent by air to other parts by the shipping companies as part of their scheduling. Kandla also attracts tourists to the bird sanctuary near it where thousands of flamingoes come every year. It is, therefore, clear that there is a strong justification for providing air services to Kandla from both economic and transport consideration. Indian Airlines were operating to Kandla in the past shows that there was good volume of traffic and this traffic is bound to have grown considerably since then. This volume should be more than adequate for third level operations.

The details of the airport are given below:

(i) Name of the airport	- Kandla
(ii) Owned by	- DGCA
(iii) Airport elevation	- 29 m.
(iv) Runway length available	- 1524 m.
(v) Type of runway	- Concrete
(vi) Navigational aids available	- NDB, RT, Telephone links, VHF.
(vii) Terminal building available	- Yes
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 6 lakhs.

### 32. SURAT

Surat is the second largest and also the second most important industrial town in Gujarat. It has a population of 4.7 lakhs. A shipyard is to be set up at Jajira, very close to Surat. At present, there is no air service linking Surat. A study of the rail traffic (air conditioned and first class) between Bombay and Surat in the past three years indicates that this sector will have a big potential for third level services. It has also been observed that there is large passenger traffic (mostly businessmen and industrialists) between Delhi and Surat. For meeting all these requirements air services are essential.

The details of the airport are given below:

(i) Name of the airport	- Dumas/Surat
(ii) Owned by	- State Govt.
(iii) Airport elevation	- 18m.
(iv) Runway length available	- 1034, 686 m.
(v) Type of runway	- F/W
(vi) Navigational aids available	- Nil
(vii) Terminal building available	- Yes
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 32 lakhs.

33. DIU

Diu is a tiny island in the Gulf of Cambay. It is one of the districts of the Union Territory of Goa, Daman and Diu. The population of Diu is 23,912. The place is considered as a potential tourist resort because of its beaches and scenic beauty.

The details of the airport are given below:

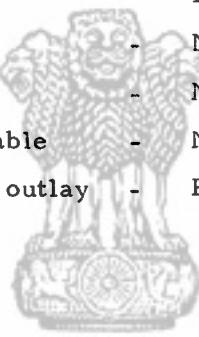
(i) Name of the airport	- Diu
(ii) Owned by	- IAF
(iii) Airport elevation	- 14 m.
(iv) Runway length available	- 1982 m.
(v) Type of runway	- Asphalt
(vi) Navigational aids available	- Nil
(vii) Terminal building available	- Nil
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 27 lakhs

34. RATNAGIRI

Ratnagiri is situated on the west coast approximately midway between Bombay and Goa. The distance between Bombay and Ratnagiri is about 200 km. It is one of the upcoming minor ports of the country. Because of its location it is likely to develop as a satellite port of Bombay. Because terrain in this region is crossed by many fast rivers and mountain ranges, transportation between Ratnagiri and other places has been poor. This and the growing industrial importance of Ratnagiri have been the factors for the introduction of air services to Ratnagiri by a private, non-scheduled operator. It is, therefore, felt that there is adequate justification for scheduled air services.

The details of the airport are given below:

(i) Name of the airport	- Ratnagiri
(ii) Owned by	- State Govt.
(iii) Airport elevation	- 564 m.
(iv) Runway length available	- 1098 m.
(v) Type of runway	- F/W
(vi) Navigational aids available	- Nil
(vii) Terminal building available	- Nil
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 20 lakhs.



35. KOLHAPUR

Kolhapur is situated about 180 km. south of Poona. It has gained major importance as a small and medium scale industrial centre. It has already got the name of "Ludhiana of Maharashtra". The per capita income of Kolhapur is quite high and it would appear that there will definitely be a large volume of traffic for air services. The Government of Maharashtra and particularly the Small Scale Industries Department of Maharashtra are keen to provide air services to Kolhapur and Ratnagiri among other places. It is understood that the Small Scale Industries Department have prepared a scheme for setting up a system of air services under their aegis using 10-seater aircraft, purely for meeting the requirements of the personnel of the Small Industries Department. This fact shows the presence of large traffic for air services to and from Kolhapur and Ratnagiri.

The details of the airport are given below:

(i) Name of the airport	- Kolhapur
(ii) Owned by	- DGCA
(iii) Airport elevation	- 607 m.
(iv) Runway length available	- 915 m.
(v) Type of Runway	- F/W
(vi) Navigational aids available	- Nil
(vii) Terminal buildings available	- Nil
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 27 lakhs.

36. NANDED

Nanded is situated about 330 km. east of Poona, in the middle of the triangle formed by Poona, Nagpur and Hyderabad. The importance of Nanded is partly because it is a major pilgrim centre of Sikhs, it being the place where Guru Gobind Singh died. Consequently thousands of Sikh pilgrims from all over the country go to Nanded.

Nanded is also growing as an industrial centre. It has a very large textile mill. It is also the Headquarters of the State Rural Bank. It would, therefore, appear that there is likelihood of adequate traffic for third level services to Nanded.

The details of the airport are given below:-

(i) Name of the airport	- Nanded
(ii) Owned by	- State Govt.
(iii) Airport elevation	- 384 m.
(iv) Runway length available	- 1250 m.
(v) Type of Runway	- Macadam
(vi) Navigational aids available	- Nil
(vii) Terminal buildings available	- Nil
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 28 lakhs.

37. mysore

Mysore has a population of 3.55 lakhs. Mysore University is located at Mysore. A National Laboratory and Defence Laboratory are also located here. A large number of large, medium and small industries including tyre, motorcycle and other plants have been set up here. Mysore has major tourist attractions in the city itself. These include the various palaces of the former rulers of Mysore, Chamundi Hill and Temple, the Krishnarajasagar Dam and Brindavan Gardens. Very close to Mysore is Srirangapatna, the capital of Tipu Sultan. A number of bird sanctuaries and wild life sanctuaries are situated close to Mysore. The famous Bandipur wild life sanctuary is located near Mysore and attracts a large number of tourists. The famous temples of Belur and Halebid are approachable from Mysore. The temple of Somnathpur is just 15 km. from Mysore. The district of Coorg and its capital Mercara also can be approached from Mysore. Mercara also is an important tourist centre (summer resort). Mysore also lies on the road to Ooty from Bangalore (Ooty is also a big tourist centre). It will be seen that Mysore and its neighbourhood contain a large number of tourist spots. Mysore is therefore very significant from the tourism point of view. About 15,000 foreign tourists visit Mysore every year. However, the nearest IA Station (Bangalore) is 140 km. away. Therefore, there is adequate justification for air services to Mysore.

The details of the airport are given below:

(i) Name of the airport	-	Mysore
(ii) Owned by	-	DGCA
(iii) Airport elevation	-	716 m.
(iv) Runway length available	-	1348 m.
(v) Type of Runway	-	F/W
(vi) Navigational aids available	-	Nil
(vii) Terminal buildings available	-	Nil
(viii) Fire fighting equipment available	-	Nil
(ix) Overall expenditure on works outlay	-	Rs. 23 lakhs.

**38. HUBLI-DHARWAR**

Hubli is situated about 90 km. south of Belgaum. The two towns of Hubli-Dharwar have a total population of 3.8 lakhs. Hubli has a workshop of the Southern Railways.

Dharwar is the centre of the Karnatak University. Many industries have come up in this area. In view of the large population and the above factors, it is considered that there will be adequate traffic for third level services.

There is no airport available at Hubli-Dharwar.

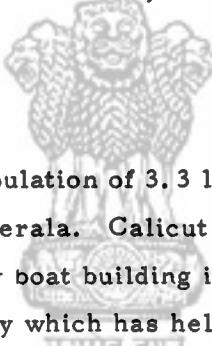
Overall expenditure on works outlay Rs. 29 lakhs.

39. RAICHUR

Raichur is a district headquarters. It is situated between the Krishna and Tungabhadra. The Tungabhadra dam is at a distance of 140 km. from Raichur. The nearest airport Hyderabad is 170 km. from here. Third level air services will open up this area for industrial and economic activities.

The details of the airport are given below:

(i) Name of the airport	- Raichur
(ii) Owned by	- State Govt.
(iii) Airport elevation	- 375 m.
(iv) Runway length available	- 1890 m.
(v) Type of runway	- Concrete
(vi) Navigational aid available	- Nil
(vii) Terminal building available	- Nil
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 32 lakhs.



40. KOZHIKODE (Calicut)

Kozhikode (Calicut) has a population of 3.3 lakhs. It is the biggest town in North Kerala and the third biggest town in Kerala. Calicut has also got a very strong timber industry and trade. It also has a busy boat building industry. Calicut is also one of the minor ports of the country. Another industry which has helped build up Calicut is the coconut and coir industry. Calicut and its surrounding areas provide great attraction for tourists. Kalady 45 km. away, the birthplace of Shri Shankaracharya, the great Indian philosopher of the 8th century is a pilgrim centre. Fifty kilometres away is the famous elephant trapping and taming centre at Kodanad. Munnar is a famous hill resort in Kerala. Periyar wildlife sanctuary is at a distance of 190 km. The nearest airport is at a distance of 218 km. at Cochin. In view of its population and the commercial importance of Calicut, there is a strong need to link up Calicut by air.

There is no airport available at Calicut.

Overall expenditure on works outlay - Rs. 40 lakhs.

#### 41. RAMANATHAPURAM

Ramanathapuram is a district headquarters. Rameshwaram, one of the important pilgrim places in India for Hindus, is about 55 km. from here. Rameshwaram attracts lakhs of people from all over the country. About 20,000 foreign tourists also visit Rameshwaram every year. The temples of Rameshwaram are famous for their artistic excellence. The thousand pillared corridor at Rameshwaram is a marvel of ancient architecture. The adjacent area of Dhanushkodi is also one of the places of pilgrimage for Hindus and is also worth seeing in itself because of the beauty of the sea, sand and sky. Because of attractions both religious and aesthetic, Rameshwaram and Dhanushkodi are outstanding places on the travel map. There is thus an obvious need for putting Ramanathapuram on the air map of India as this will serve as a means of utility to large numbers of tourists while at the same time helping in the further development of tourist traffic to these areas.

The details of the airport are given below:

(i) Name of the airport	- Ramnad
(ii) Owned by	- DGCA
(iii) Airport elevation	- 05 m.
(iv) Runway length available	- 727 m.
(v) Type of Runway	- F/W
(vi) Navigational aids available	- Nil
(vii) Terminal building available	- Nil
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 33 lakhs.



#### 42. THANJAVUR

It is the district headquarters and has a population of 1.4 lakhs. It was the capital of Cholas. These munificent kings built wonderful temples in and near Thanjavur. The most famous is the Brihadeeswarar temple, which is a marvel. Subsequent rulers of Thanjavur were also very aesthetically inclined and many buildings, paintings, murals etc. vouch for this. Two thousand five hundred foreign tourists visit Thanjavur every year. There is, therefore, definite need for providing air services to Thanjavur both because of the present requirements and also for the potential development it can create.

Details of the airport are given below:

(i) Name of the airport	- Thanjavur
(ii) Owned by	- DGCA
'(iii) Airport elevation	- 76 m.
(iv) Runway length available	- 1463 m.
(v) Type of runway	- Concrete
(vi) Navigational aids available	- Nil
(vii) Terminal building available	- Nil
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 25 lakhs.

43. TUTICORIN

Tuticorin is a much older port than Madras having been in existence as a centre for trade in pearls from the time of the Pandyan kings. Tuticorin is being converted into a major port. A fertiliser factory is located there. A petrochemical industry is also set up here. Many industries (PVC, Calcium Carbide etc.) have also been started. (It has been informally indicated by the Tamil Nadu Government as also by the Fertiliser Factory authorities that they can guarantee all seats on third level services.) The nearest I. A. station (Madurai) is 125 km. away. It is, therefore, clear that air service to Tuticorin is essential.

There is no airport available at Tuticorin.

Overall expenditure on works outlay - Rs. 45 lakhs.



44. PONDICHERRY

Pondicherry is the capital of the Union Territory of Pondicherry. This city is famous for its spiritual and religious background. The Aurobindo Ashram attracts thousands of devotees and tourists from India and abroad. The Auroville Township which is being built in Pondicherry has further increased the inflow of foreign tourists. About 12,000 foreign tourists visit this place every year. It also has many industries. However, at present, Pondicherry is not connected by air. Pondicherry being the capital of the Union Territory and having rich spiritual attractions qualifies to be connected by air particularly as the nearest I. A. station (Madras) is 175 km. away.

There is no airport available at Pondicherry.

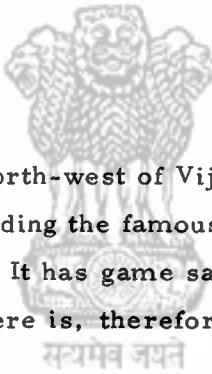
Overall expenditure on works outlay - Rs. 45 lakhs.

45. CUDDAPAH

Cuddapah is one of the biggest towns in Andhra Pradesh. It is situated in Rayalaseema area. There is a cement plant and also lime stone quarries. Bangalore the nearest I.A. station, is about 200 km. away. Cuddapah is a backward area and provision of air services to Cuddapah will open up this area.

Details of the airport are given below:

(i) Name of the airport	- Cuddapah
(ii) Owned by	- DGCA
(iii) Airport elevation	- 131 m.
(iv) Runway length available	- 110 m.
(v) Type of runway	- Tarmac
(vi) Navigational aid available	- Nil
(vii) Terminal building available	- Yes.
(viii) Fire fighting equipment available	- Nil.
(ix) Overall expenditure on works outlay	- Rs. 22 lakhs.



46. WARANGAL

Warangal is situated 200 km. north-west of Vijayawada. It is very famous for the monuments of the Kakatiya Dynasty including the famous thousand pillared temple. Warangal also has a regional engineering college. It has game sanctuaries. Hyderabad, the nearest I.A. station is about 160 km. away. There is, therefore, good justification for providing air services to Warangal.

Details of the airport are given below:-

(i) Name of the airport	- Warangal
(ii) Owned by	- DGCA
(iii) Airport elevation	- 285 m.
(iv) Runway length available	- 1862 m.
(v) Type of runway	- Concrete
(vi) Navigational aids available	- Nil
(vii) Terminal building available	- Yes
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 20 lakhs.

47. RAJAHMUNDRY

This is one of the biggest towns in Andhra Pradesh. It has grown significantly in recent years with the setting up of new industries. Rajahmundry is situated in the coastal district on the banks of the Godavari River. It suffers from the lack of transportation (other than the railway line from Madras to Calcutta) due to its location in the delta of the Godavari. This district is very rich agriculturally. There is, therefore, justification for third level services to this place.

Details of the airport are given below:

(i) Name of the airport	- Rajahmundry
(ii) Owned by	- DGCA
(iii) Airport elevation	- 46 m.
(iv) Runway length available	- 1829 m.
(v) Type of runway	- Concrete
(vi) Navigational aids available	- Nil
(vii) Terminal building available	- Small Building
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 25 lakhs.



48. KANHA

It is situated in the central highlands of India. It is one of the finest places for seeing Indian swamp deer, chital, blackbuck, Indian bison etc. At present Kanha can be reached by a motorable road from Nagpur (273 km. away) taking about 6 hours. Kanha is a potential tourist attraction for foreigners. Introduction of third level services will also help in promoting economic growth of this region.

Details of the airport are given below:

(i) Name of the airport	- Kanha
(ii) Owned by	- State Govt.
(iii) Airport elevation	- 861 m.
(iv) Runway length available	- 1610 m.
(v) Type of runway	- Kacha
(vi) Navigational aids available	- Nil
(vii) Terminal building available	- Nil
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 33 lakhs.

49. JAGDALPUR

It is the district headquarter of Bastar district. The tribal area of Bastar is remote due to lack of communication and transportation. It takes many hours journey to reach this area by surface transportation. Third level services will open up this area and remove the isolation of the community. Also, Jagdalpur may become a point of tourist attraction in coming years particularly because of the recently discovered cave paintings in this area. Once air services are started, tourist industry will also come to this area. Jagdalpur has a need for air services in view of its isolation.

Details of the airport are given below:

(i) Name of the airport	- Jagdalpur
(ii) Owned by	- State Govt.
(iii) Airport elevation	- 556 m.
(iv) Runway length available	- 1029 m.
(v) Type of runway	- Concrete
(vi) Navigational aids available	- Nil
(vii) Terminal building available	- Nil
(viii) Fire fighting equipment available	- Nil
(ix) Overall expenditure on works outlay	- Rs. 32 lakhs.



50. KAVARATTI

Kavaratti is the capital of the Union Territory of Lakshadweep Islands which are at present only served by ships from the mainland. Kavaratti being the capital city needs to be connected by air with the mainland because of its strategic location in the Arabian Sea. This will also bring the people of these islands closer to the mainstream of the country.

There is no airport available at Kavaratti.

Overall expenditure on works outlay - Rs. 50 lakhs.

3. INVESTMENT FOR DEVELOPING INFRASTRUCTURAL FACILITIES  
AT THE PROPOSED 50 PLACES :

Out of the 50 places, selected by the Committee, to be served by the third level services, some places do not have aerodromes, some places have navigational facilities partly or completely and many places would have to be equipped with emergency equipment and terminal buildings. To bring all the places to a level of adequacy to handle the third level operations, capital investment would be required in most of the places. An estimate of this investment is given in this section.

The following facilities are the minimum which would be required at each aerodrome:

1. Adequate runway length and strength

2. Navigational Aids :

(i) NDB

(ii) Inter Tower R.T.

(iii) A/G V.H.F.

(iv) Telephone link

3. Emergency Equipment :

(i) Crash tender

(ii) Ambulance

(iii) Operational jeep

4. Terminal Building, Fencing, Water and Power supply, etc.

The total investment estimated to bring all the aerodromes to a standard of third level operations is approximately Rs. 19 crores. The investment required at each individual aerodrome is given below:-

Sl. No.	Name of the Aerodrome	Overall expenditure on works outlay
1	2	3
( Rupees in lakhs )		
1.	Aizawl	35
2.	Shillong	49
3.	Itanagar	220
4.	Along	25
5.	Ziro	46
6.	Tezu	46
7.	Daborijo	46
8.	Passighat	25

(Contd.)

S.l. No.	Name of the Aerodrome	Overall expenditure on works outlay
1	2	3
(Rupees in lakhs)		
9.	Gangtok	220
10.	Rupsi	20
11.	Cooch-Behar	20
12.	Puri	45
13.	Rourkela	Nil
14.	Gaya	Nil
15.	Muzzafarpur	Nil
16.	Jamshedpur	Nil
17.	Pantnagar	18
18.	Dehra Dun	28
19.	Karnal	33
20.	Simla	220
21.	Kulu	Nil
22.	Ludhiana	27
23.	Jullundur	27
24.	Ajmer	32
25.	Jaisalmer	6
26.	Bikaner	5
27.	Kota	6
28.	Abu Road	32
29.	Amreli	31
30.	Mithapur	45
31.	Kandla	6
32.	Surat	32
33.	Diu	27
34.	Ratnagiri	20
35.	Kolhapur	27
36.	Nanded	28
37.	Mysore	23
38.	Hubli-Dharwar	29
39.	Raichur	32
40.	Kozhikode (Calicut)	40
41.	Ramanathapuram	33

(Contd.)

Sl. No.	Name of the Aerodrome	Overall expenditure on works outlay
1	2	3
( Rupees in lakhs )		
42.	Thanjavur	25
43.	Tuticorin	45
44.	Pondicherry	45
45.	Cuddapah	22
46.	Warangal	20
47.	Rajahmundry	25
48.	Kanha	33
49.	Jagdalpur	32
50.	Kavaratti	50



4. STAGING

Based on the time scale for bringing the facilities at various airports to the minimum standard, the following staging could be adopted :

First Stage

The following places have got aerodromes which are suitable for operating services immediately or within one year :

(i) Aizawl	(xxi) Bikaner
(ii) Shillong	(xxii) Kota
(iii) Along	(xxiii) Abu Road
(iv) Ziro	(xxiv) Amreli
(v) Tezu	(xxv) Mithapur
(vi) Daborijo	(xxvi) Kandla
(vii) Passighat	(xxvii) Surat
(viii) Rupsi	(xxviii) Diu
(ix) Cooch-Behar	(xxix) Ratnagiri
(x) Rourkela	(xxx) Kolhapur
(xi) Gaya	(xxxi) Nanded
(xii) Muzaffarpur	(xxxii) Mysore
(xiii) Jamshedpur	(xxxiii) Raichur
(xiv) Pantnagar	(xxxiv) Ramanathapuram
(xv) Karnal	(xxxv) Thanjavur
(xvi) Kulu	(xxxvi) Cuddapah
(xvii) Ludhiana	(xxxvii) Warangal
(xviii) Jullundur	(xxxviii) Rajahmundry
(xix) Ajmer	(xxxix) Kanha
(xx) Jaisalmer	(xxxx) Jagdalpur



The total expenditure involved in this stage would be approximately Rs. 9.45 crores excluding land acquisition costs at Shillong, Abu Road, Ramanathapuram and Ajmer.

Second Stage

The following places would be ready for air services between one to about three years or so. These places do not have aerodrome at present and hence the time includes the time involved in acquiring land, building up facilities etc.

(i) Itanagar	(vi) Hubli-Dharwar
(ii) Gangtok	(vii) Kozhikode (Calicut)
(iii) Puri	(viii) Tuticorin
(iv) Dehra Dun	(ix) Pondicherry
(v) Simla	(x) Kavaratti

The total expenditure involved in the second stage would be approximately  
Rs. 9.42 crores.

The total expenditure on both stages would be about Rs. 18.87 crores.



EAST - 1

<u>Gauhati</u> *	<u>Itanagar</u>	<u>Ziro</u>	<u>Along</u>	<u>Passighat</u>
0650 - - - - -	0750			
0810 - - - - -	0830			
0905 - - - - -	0845			
0920 - - - - -				
		0940		
		0955 - - - - -		1015
		1050 - - - - -		1030
1125 - - - - -		1105		
1245 - - - - -	1145			

Rupsi

Cooch Behar

1400 - - - - -	1440			
	1455 - - - - -	1515		
	1550 - - - - -	1530		
1645 - - - - -	1605			
		06-00		
		<u>GAU-GAU</u>		



EAST - 2

Gauhati \*

Shillong

Silchar \*

Aizawl

0700 - - - - -	0720			
	0740 - - - - -			
		0820		
		0840 - - - - -		0915
		1020 - - - - -		0945
1200 - - - - -	1120 - - - - -	1040		
	1140 - - - - -			

Bagdogra \*

Gangtok

1230 - - - - -	1355			
	1415 - - - - -			1445
	1535 - - - - -			1505
1720 - - - - -	1555			
		07-00		
		<u>GAU-GAU</u>		

\* I. A. Stations.

EAST - 3

<u>Calcutta *</u>	<u>Jamshedpur</u>	<u>Rourkela</u>	<u>Raipur *</u>	<u>Kanha Park</u>	<u>Jagdalpur</u>
0710 - - - -	0800	0850	1015		
	0820 - - - -	0905 - - - -	1045 - - - -	1125	
			1220 - - - -	1140	
			1240 - - - -		1350
			1520 - - - -		1410
		1650 - - - -	1540 - - - -		
1735 - - - -	1705 - - - -				
1845 - - - -	1735 - - - -				



EAST - 4

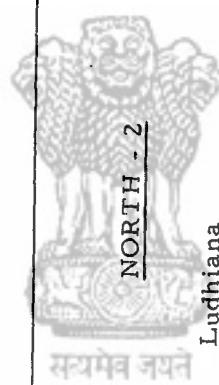
<u>Calcutta *</u>	<u>Gaya</u>	<u>Patna *</u>	<u>Muzaffarpur</u>
1130 - - - -	1255 - - - -	1340 - - - -	
	1310 - - - -	1400 - - - -	1425
		1505 - - - -	1440
		1525 - - - -	
1735 - - - -	1555 - - - -		
	1610 - - - -		

04-40  
CAL-CAL

NORTH - 1

<u>Delhi *</u>	<u>Simla</u>	<u>Partnagar</u>	<u>Dehradun</u>
0630	-----	0800	
0950	-----	0820	
1010	-----	1100	
1210	-----	1120	
1330	-----	1420	
1530	-----	1440	

06-20  
DEL-DEL



NORTH - 2

<u>Delhi *</u>	<u>Ludhiana</u>	<u>Jullundur</u>
0610	0730	
	0745	0810
	0850	0825
1025	0905	

Kulu

1045	-----	1250
1520	-----	1315

07-40  
DEL-DEL

\* I. A. Stations.

NORTH - 3

<u>Delhi * (Safdarjung)</u>	<u>Kotah</u>	<u>Jaipur *</u>	<u>Ajmer</u>	<u>Abu Road</u>
0615 -----	0750	0915	1020	
	0810 -----	0930 -----	1035 -----	1155
			1335 -----	1215
		1440 ----- Separate	1350 -----	
1755 -----	1605 -----	1500		
	1620 -----			



NORTH - 4

<u>Delhi * (Safdarjung)</u>	<u>Bikaner</u>	<u>Jaisalmer</u>
0645 -----	0815	
	0835 -----	0955
	1135 -----	1015
1325 -----	1155 -----	

05-40  
DEL-DEL

\* I. A. Stations.

SOUTH - 1

Madras \*

Mahabalipuram

	<u>Pondicherry</u>
0615	0640
0655	0735
0850	0/50
0910	0845

Thanjavur

Tuticorin

	<u>Ramnad</u>	<u>Tuticorin</u>
0930	1045	
	1100	1200
		1215
		1255
1510		1355
		1315
1640	1525	1410

\* I. A. Stations.

08-00  
MAA - MAA

## Warangal

Rajahmundry

0615	---	0740	0910	0705
		0800	0925	0725
1015	---	4 days		
0615	---	0835		
1015	---	3 days	0850	

Raichur

Cuddapah

1100	-	1215	-	1335
	-	1230	-	1350
1455	-	4 days	-	
	-		-	
1100	-	1325	-	1205
	-		-	
1455	-	3 days	-	1220
	-		-	

06-50  
HYD - HYD

### \* I. A. Stations.

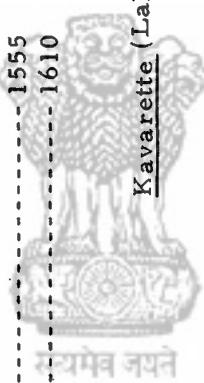
SOUTH - 3

Trivandrum \*

	<u>Cochin *</u>	<u>Calicut</u>
0645	0745	
	0800	0855
1455	1340	1245
	1355	

Kanyakumari

1515	1555	
1650	1610	



Calicut

0915	1040	
1225	1100	

$$\frac{08-00}{TRV - TRV}$$

\* I. A. Stations.

WEST - 1

	<u>* Bombay (Juhu)</u>	<u>Surat</u>	<u>Diu</u>	<u>Kandla</u>
0700	-----	0800		
0920	-----	0820		
0945	-----			
1510	-----			

06-30  
BOM - BOM



WEST - 2

	<u>* Bombay (Juhu)</u>	<u>Ratnagiri</u>	<u>Kolhapur</u>	<u>Hubli</u>
0630	-----	0720		
		0740	0810	
		0900	0830	
1010	-----	0920		

Nanded

1030	-----	1200		
1350	-----	1220		
1415	-----		1530	
			1545	1620
			1715	1640
1845	-----		1730	

09-20  
BOM - BOM

S U M M A R Y

				<u>Regional Maint. Base</u>
East - 1	-	06-00	East	- 4
East - 2	-	07-00	North	- 4
East - 3	-	08-40	South	- 3
East - 4	-	04-40	West	- 2
North - 1	-	06-20	Maint/	-
North - 2	-	07-40	Trg.	- 5
North - 3	-	09-40	<u>FLEET</u>	-
North - 4	-	05-40		18
South - 1	-	08-00		
South - 2	-	06-50		
South - 3	-	08-00		
West - 1	-	06-30		
West - 2	-	09-20		
				—————
	<u>Daily Hours</u>	-		94-20
	<u>Annual Hours</u>	-		34430-00
	<u>Utilisation</u>	-		1913-00

**DETAILS OF THE MINIMUM DEVELOPMENTAL  
WORKS REQUIRED AT AERODROMES FOR  
THIRD LEVEL OPERATIONS AND  
ESTIMATED COSTS**



PROPOSED WORKS AT AERODROMES INCLUDED FOR  
THIRD LEVEL OPERATIONS IN THE FIRST PHASE

I. Detailed information about facilities available/required at each of the 50 proposed aerodromes/places to be covered by third level operations is given below:

II. It will be observed that the aerodromes fall under the following five categories.

- 1) Aerodromes owned by D. G. C. A.
- 2) Aerodromes owned by State Governments.
- 3) Aerodromes owned by IAF/Army (Ministry of Defence)
- 4) Aerodromes owned by Private Parties.
- 5) Aerodromes required to be constructed by D. G. C. A.

III. At eight aerodromes listed below some basic facilities like availability of landing strip, Radio Navigational aids, Air Traffic & Safety services, residential quarters, etc. exist and air services to these aerodromes can commence immediately. These aerodromes are :-

1) Jamshedpur (Bihar)	5) Kandla (Gujarat)
2) Rourkela (Orissa)	6) Kotah (Rajasthan)
3) Kulu (Himachal Pradesh)	7) Gaya (Bihar)
4) Pantnagar (Uttar Pradesh)	8) Muzaffarpur (Bihar)

IV. There are Fourteen Aerodromes where some of the basic facilities required are available and some are not available. It will require nearly six months to a year to provide remaining basic facilities before air services can commence. It is expected that provision of remaining facilities will cost nearly Rs. 146.00 lakhs during current financial year. These aerodromes are as below:-

1) Aizwal (Mizoram)	8) Kolhapur (Maharashtra)
2) Pasighat (Arunachal Pradesh)	9) Rajahmundry (Andhra Pradesh)
3) Warangal (Andhra Pradesh)	10) Surat (Gujarat)
4) Cuddapah (Andhra Pradesh)	11) Bikaner (Rajasthan)
5) Cooch Behar (West Bengal)	12) Jaisalmer (Rajasthan)
6) Rupsi (Assam)	13) Thanjavur (Tamil Nadu)
7) Ratnagiri (Maharashtra)	14) Umroi (Barapani for Shillong) (Meghalaya)

V. There are 18 aerodromes where few basic facilities exist and many other facilities will be required before air service to these stations can commence. It will take nearly 1 year to provide/equip these aerodromes with remaining facilities. It is expected that nearly Rs. 319 lakhs will be required during current financial year and Rs. 181 lakhs will be

required during the next financial year to meet these requirements. These aerodromes are:-

1) Mysore (Karnataka)	10) Jullundur (Punjab)
2) Raichur (Karnataka)	11) Karnal (Haryana)
3) Ramnad (Tamil Nadu)	12) Jagdalpur (Madhya Pradesh)
4) Abu Road (Rajasthan)	13) Kanha (Madhya Pradesh)
5) Ajmer (Rajasthan)	14) Nanded (Maharashtra)
6) Diu (Gujarat)	15) Amreli (Gujarat)
7) Zero (Arunachal)	16) Mithapur (Gujarat)
8) Along (Arunachal)	17) Tezu (NEFA)
9) Ludhiana (Punjab)	18) Daborijo (NEFA)

VI. Remaining 10 places listed for operation do not have any facilities whatsoever and new airports will have to be built necessitating the need to acquire land, fence it, build landing strip, control towers, terminal building etc. before air services can commence. These places are listed below:-

1) Pondicherry	6) Kavaratti (Lakshdweep)
2) Puri (Orissa)	7) Simla (Himachal Pradesh)
3) Tuticorin (Tamil Nadu)	8) Dehra Dun (Uttar Pradesh)
4) Hubli (Karnataka)	9) Gangtok
5) Calicut (Kerala)	10) Itanagar



VII. At places mentioned from S.No. 1 to 5 and 10 above, it will require nearly 2 years to construct a new airport and from S.No. 6 to 9 over 2 years to construct a new airport. construction of new airports is likely to cost nearly Rs. 178 lakhs in the current financial year and Rs. 325 lakhs, Rs. 205 lakhs and Rs. 245 lakhs in subsequent years.

VIII. A study of the attached sheets will indicate that Rs. 18.65 crores will be required on works outlay for equipping suitably aerodromes/places mentioned and this will be spread over four years as follows:-

1) 1978-79	Rs. 653.00 lakhs
2) 1979-80	Rs. 649.00 lakhs
3) 1980-81	Rs. 300.00 lakhs
4) 1981-82	Rs. 263.00 lakhs

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Rs. 1,865.00 lakhs, i.e. Rs. 18.65 crores.  
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**AERODROMES IN CATEGORY-I**  
( Ready to take traffic immediately )



JAMSHEDPUR (BIHAR)

Location - 2249 N  
8610 E  
Elevation - 465'  
Owner - TISCO

TISCO (Licensed aerodrome). At present no air services are operating to this airfield.

EXISTING FACILITIES:

- 1) Runway 3475' x 170'  
Water bound tarmacadam.  
LCN. 10
- 2) Terminal Building
- 3) Control Tower
- 4) Residential Quarters
- 5) Power Supply & Water Supply
- 6) Fencing
- 7) Radio Nav. aid (NDB)
- 8) Inter Tower R/T
- 9) V. H. F. R/T
- 10) Telephone Link
- 11) Safety service.

FACILITIES REQUIRED:

- 1) Immediately : Nil
- 2) Subsequently : Nil

Proposed Yearwise Expenditure:

N I L



OURKELA (ORISSA)

Location - 2215 N  
8448 E  
Elevation - 655' AMSL  
Owner - Hindustan Steel Ltd.

This airfield was constructed by M/s. Hindustan Steel. Previously Indian Airlines services had been operating to this aerodrome but none operates presently. Only executive aircraft land there at present.

FACILITIES AVAILABLE:

- 1) Runway 6000' x 100' (tarmac)
- 2) Terminal Building
- 3) Control Tower
- 4) Residential Quarters
- 5) Water & Electricity
- 6) Fencing
- 7) F/C 10
- 8) VHF
- 9) Telephone lines
- 10) Safety services

FACILITIES REQUIRED :

- 1) Immediately: Nil
- 2) Subsequently : Nil



KULU (HIMACHAL PRADESH)

Location - 315238 N  
770924 E  
Elevation - 3557' AMSL  
Owner - DGCA

This aerodrome was constructed by Director General of Civil Aviation. At present, a non-schedule service is operating to this aerodrome.

EXISTING FACILITIES :

- 1) Runway 3700' x 100'  
Tarmacadam LCN 14
- 2) Terminal Building & Tower
- 3) Fencing
- 4) Elect. & Water
- 5) N. D. B.
- 6) Inter Tower R/T
- 7) VHF R/T
- 8) Telephone etc.
- 9) Safety Services

FACILITIES REQUIRED :

- N I L -



PROPOSED EXPENDITURE :

<u>1st Yr.</u>	<u>2nd Yr.</u>	<u>3rd Yr.</u>	<u>4th Yr.</u>
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PANTNAGAR (UTTAR PRADESH)

Location - 290205 N  
792830 E  
Elevation - 764'  
Owner - DGCA

The aerodrome was constructed by Director General of Civil Aviation in the Fifties. At present no air services are operating to this aerodrome.

EXISTING FACILITIES :

1. Runway 3600' x 100' (Tarmacadam)  
LCN 10
2. Apron & Taxiway
3. Terminal Building and Tower
4. Fencing
5. Elect. & Water.

FACILITIES REQUIRED :

1. <u>IMMEDIATE:</u>	
N. D. B.	Rs. 4.00 Lakhs
Inter Tower R/T	Rs. 5.00 "
V. H. F. R/T	Rs. 2.00 "
Telephone etc.	Rs. 1.00 "
Safety services	Rs. 6.00 "
Total	<u>Rs. 18.00 Lakhs</u>

Proposed yearwise expenditure :



1st Yr.

2nd Yr.

3rd Yr.

4th Yr.

Rs. 8.00 Lakhs    Rs. 10.00  
Lakhs

### KANDLA (GUJARAT)

Location - 2307 N  
7006 E  
Elevation - 95'  
Owner - DGCA

This aerodrome was constructed by Civil Aviation Deptt. At present no air services are operating to this airfield.

#### EXISTING FACILITIES :

- 1) Runway 5000' x 100'  
concrete LCN 10
- 2) Terminal Building
- 3) Control Tower
- 4) Residential Quarters
- 5) Power & Water Supply
- 6) Fencing
- 7) Radio Nav. aid (NDB)
- 8) Inter Tower R/T
- 9) V.H.F. R/T
- 10) Telephone Link.

#### FACILITIES REQUIRED :

i) <u>IMMEDIATE:</u>		
Safety services	Rs. 6.00 Lakhs	
Subsequently	Rs. Nil	
Total :	Rs. 6.00 Lakhs	

#### Proposed yearwise expenditure:

1st Yr. 2nd Yr.

Nil Rs. 6 Lakhs



KOTA (RAJASTHAN)

Location - 2509 N  
7550 E  
Elevation - 896'  
Owner - DGCA

This is an ex-Kota State aerodrome taken over under the F. F. I. schemes. Air services have been operating to this aerodrome in the past. At present no air service on a regular basis operates.

FACILITIES AVAILABLE

- 1) Runway 4000' x 150'  
(concrete) LCN 10
- 2) Terminal Building & Car Park
- 3) Control Tower & Garages
- 4) Power & Water supply.
- 5) Fencing etc.
- 6) Radio & Nav. aids (NDB)
- 7) F/C 10 (Inter Tower R/T)
- 8) V.H.F.
- 9) Telephones
- 10) Residential Quarters

FACILITIES REQUIRED

- 1) Immediate: NIL
- 2) Subsequently:  
Safety Services: Rs. 6.00 Lakhs.

Yearwise expenditure:

	<u>1st Yr.</u>	<u>2nd Yr.</u>	<u>3rd Yr.</u>	<u>4th Yr.</u>
	Nil	Rs. 6.00 Lakhs	Nil	Nil



GAYA (BIHAR)

Location - 244451 N  
845041 E  
Elevation - 362'  
Owner - DGCA

One of the oldest aerodrome owned by Civil Aviation Department. For some time Schedule Service used to operate through this aerodrome. At present it is not linked by air.

FACILITIES AVAILABLE :

- 1) Runway 4824' x 150'  
Concrete LCN 20.  
7500' x 150' Tarmacadam.
- 2) Terminal Building & Carpark
- 3) Control Tower/Garrages.
- 4) Residential Quarters
- 5) Power Supply.
- 6) Water Supply
- 7) Fencing
- 8) Radio Nav. aid N. D. B.
- 9) Inter Tower R/T
- 10) V. H. F. R/T
- 11) Telephone Link
- 12) Safety Services.

FACILITIES REQUIRED :

- N I L -



Yearwise expenditure :

1st Yr. 2nd Yr. 3rd Yr. 4th Yr.

Nil Nil Nil Nil

MUZAFFARPUR (BIHAR)

Location - 260701 N  
851854 E  
Elevation - 174' AMSL  
Owner - DGCA

Some time back Schedule service used to operate through this aerodrome.  
At present it is not linked by air.

FACILITIES AVAILABLE :

- 1) Runway 4000' x 100'  
Bitumen LCN 10
- 2) Terminal Building & Carpark
- 3) Control Tower/Garrages
- 4) Residential Quarters
- 5) Power Supply
- 6) Water Supply.
- 7) Fencing
- 8) Radio Nav. A.d N.D.B.
- 9) V.H.F. R/T
- 10) Inter Tower R/T
- 11) Telephone Link
- 12) Safety Services.



- N I L -

Yearwise Expenditure:

<u>1st Yr.</u>	<u>2nd Yr.</u>	<u>3rd Yr.</u>	<u>4th Yr.</u>
Nil	Nil	Nil	Nil

**AERODROMES IN CATEGORY-II**  
(Can be ready for traffic in Six Months to One Year)



AIZAWL (MIZORAM)

Location	-	2344 N 9248 E
Elevation	-	1000'
Owner	-	I.A.F.

The airfield is located on top of ridge. At places the land erosion of retaining wall is necessary to permit regular air operations. IAF want to hand over the airfield for any development for civil operations.

FACILITIES AVAILABLE:

1. Runway. 4500' x 100'  
LCN - 10
2. A small building.
3. Temporary Control Tower
4. Fencing.
5. Water & Electricity
6. V. H. F. R/T.

FACILITIES REQUIRED:

	<u>IMMEDIATE</u>	<u>Rs. in Lakhs</u>
i)	(a) Construction of retaining wall & repair to runway.	10.00
	(b) N. D. B.	4.00
	(c) Inter Tower R/T	5.00
	(d) Telephones etc.	1.00
	(e) Safety Service	6.00



SUBSEQUENT

- (a) Terminal building 2.00
- (b) Control Tower 1.00
- (c) Residential Quarters 3.00
- (d) Augmentation of water & Electricity supply. 3.00

35.00

Proposed Expenditure.

1	2	3	4
22.00	8.00	5.00	

PASSIGHAT (ARUNACHAL PRADESH)

Location - 2806 N  
9523 E  
Elevation - 510'  
Owner - DGCA

No air service is operating to this aerodrome at present.

EXISTING FACILITIES

FACILITIES REQUIRED

Rs. in Lakhs

1)	A PSP strip 3300 x 60 ft.	<u>IMMEDIATE</u>
2)	Small Building.	Repairs to existing structures, car park and roads. 2.00
3)	Small Control Tower.	Apron & Taxi Tract 2.00
4)	Fencing.	Radio Aids - N. D. B. 4.00
5)	Water & Electricity.	F/G 10 (Inter Tower/ R/T) 5.00 VHF 2.00 Telephone links 1.00 Safety Services 5.00

SUBSEQUENT

Residential Quarters, Control Tower etc.	4.00
	25.00

PROPOSED EXPENDITURE

1st year	11.00
2nd year	10.00
3rd year	4.00
4th year	-

WARANGAL (ANDHRA PRADESH)

Location	-	175452 N 793608 E
Elevation	-	935 feet A. M. S. L.
Owner	-	DCCA.

The aerodrome was constructed during World War II and was taken over by Civil Aviation Department under the F. F. I. Scheme in 1950. At present no air services are operating to this aerodrome.

	<u>EXISTING FACILITIES</u>	<u>FACILITIES REQUIRED</u>	<u>Rs. in Lakhs</u>
1.	Runway 6109' x 150' (Concrete) LCN 10.	(1) <u>IMMEDIATE</u>	
2.	Apron & Taxi Track.	Repairs to Building & Fencing etc.	2.00
3.	Terminal Building & TWR.	N. D. B.	4.00
4.	One small hangar.	Inter Tower R/T	5.00
5.	Fencing.	VHF.	2.00
6.	Electric & Water Supply.	Telephone etc.	1.00
		<u>Safety Services</u>	6.00
		(2) <u>SUBSEQUENT</u>	<u>NIL</u>
		Total :	20.00

PROPOSED EXPENDITURE

1 yr.	2nd yr.	3rd yr.	4th yr.
10.00	10.00	-	-

CUDDAPAH (ANDHRA PRADESH)

Location - 1431 N  
7846 E  
Elevation - 430 Ft. A. M. S. L.  
Owner - DGCA.

The aerodrome was constructed by the Civil Aviation Department before World War II. At present no air service is operating to this aerodrome.

EXISTING FACILITIES

- 1) R/W 3600' x 100' (Tarmac)  
LCN 10.
- 2) Apron & Taxy Track.
- 3) Terminal Building & Control Tower
- 4) Fencing.
- 5) Water & Electricity.

FACILITIES REQUIRED

1)	<u>IMMEDIATE</u>	<u>Rs. in Lakhs</u>
	Repair to terminal building, fencing, roads etc.	2.00
	Non Directional Radio Beacon	4.00
	Inter Tower R/T.	5.00
	VHF R/T.	2.00
	Telephone etc.	1.00
	Safety Services	6.00



2) SUBSEQUENT

सत्यमेव जयते Residential Quarters 2.00

Total: 22.00

PROPOSED YEAR-WISE EXT.

1st Yr.	2nd Yr.	3rd Yr.
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10.00	10.00	2.00
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COOCH - BEHAR (WEST BENGAL)

Location - 2620 N  
8928 E

Elevation - 136' A. M. S. L.

Owner - DGCA

This ex-Cooch Behar State aerodrome was taken over under F. F. I. Scheme in 1950. Non-Scheduled/Scheduled Services have been operating to Cooch Behar but none at present.

<u>FACILITIES AVAILABLE</u>		<u>FACILITIES REQUIRED</u>	<u>Rs. in Lakhs</u>
1.	Runway 3505' x 100' Tarmac (LCN - 10)	1) <u>IMMEDIATE</u>	
2.	Apron/Taxi Track.	Repairs to terminal bldg. control tower, fencing etc.	2.00
3.	Terminal Building/ Control Tower.	Non directional Radio beacon	4.00
4.	Fencing.	Inter Tower R/T.	5.00
5.	Water & Electricity Residential Quarters.	VHF R/T. Telephones etc. Safety Services	2.00 1.00 6.00
		2) <u>SUBSEQUENT</u>	NIL
			20.00



PROPOSED YEAR-WISE EXPENDITURE

<u>1st Yr.</u>	<u>2nd Yr.</u>
Rs. 10.00 Lakhs.	10.00 Lakhs.

RUPSI : (ASSAM)

Location : 260823 N  
895436 E

Elevation : 132' A. M. S. L.

Owner : DGCA.

The aerodrome was constructed during World War II and was taken over by the C. A. D. after the war. At present no air services are operating to this airfield.

EXISTING FACILITIES

- 1) Runway - 6000' x 150' Concrete, LCN 10.
- 2) Apron & Taxi way.
- 3) Terminal Building & Tower.
- 4) Fencing.
- 5) Electric & Water Supply.

FACILITIES REQUIRED

<u>IMMEDIATE</u>	<u>Rs. in Lakhs</u>
Repairs to building, fencing etc.	2.00
NDB	4.00
Inter Tower R/T	5.00
VHF R/T.	2.00
Telephone etc.	1.00
Safety Services	<u>6.00</u>
Total	20.00

2) SUBSEQUENT

PROPOSED EXPENDITURE

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<u>1st Yr.</u>	<u>2nd Yr.</u>	<u>3rd Yr.</u>	<u>4th Yr.</u>
10.00	10.00	-	-

RATNAGIRI (MAHARASHTRA)

Location : 1700 N  
7319 E

Elevation : 1850'

Owner : State Government

The fair weather airstrip was constructed by the State Government. No air services are operating to this airfield.

EXISTING FACILITIES

1) Runway - 3600' x 100' -  
Fair Weather.

2) Fencing.

FACILITIES REQUIRED

(1) IMMEDIATE Rs. in Lakhs

Construction of Terminal  
Building & Fencing 2.00

NDB. 4.00

Inter Tower R/T. 5.00

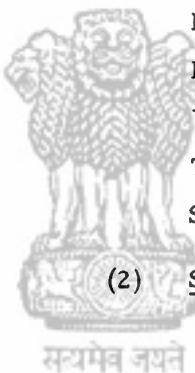
V. H. F. R/T. 2.00

Telephone 1.00

Safety Services 6.00

(2) SUBSEQUENT NIL

20.00



PROPOSED EXPENDITURE

1st Yr. 2nd Yr. 3rd Yr. 4th Yr.

10.00 10.00 - -

**KOLHAPUR (MAHARASHTRA)**

Location : 163955 N  
741729 E  
Elevation : 1990'  
Owner : DGCA.

This aerodrome was taken over by the CAD under the F. F. I. Scheme in 1950. Recently a private operator is operating a non-scheduled service on the route Bombay - Ratnagiri - Kolhapur.

	<u>EXISTING FACILITIES</u>	<u>FACILITIES REQUIRED</u>	
		<u>IMMEDIATE</u>	<u>Rs. in Lakhs</u>
1.	Runway - 3000' x 300' F/W	1) <u>IMMEDIATE</u>	
2.	Fencing.	Terminal Building	2.00
		TWR & Garages.	1.00
		Water & Electricity.	4.00
		NDB	4.00
		Inter Tower R/T	5.00
		VHF	2.00
		Telephone links	1.00
		Safety Services	6.00
		2) <u>SUBSEQUENT</u>	
		Residential Quarters	2.00
		<hr/>	<hr/>
		Total:	27.00
		<hr/>	<hr/>

**PROPOSED EXPENDITURE**

	1st Year	2nd Year	3rd Year	4th Year
	15.00	10.00	2.00	-
	<hr/>	<hr/>	<hr/>	<hr/>

**RAJAHMUNDRY (ANDHRA PRADESH)**

Location - 170630 N  
814916 E  
Elevation - 146' AMSL  
Owner - DGCA

This is an old airstrip constructed before World War II and it was developed by Defence during World War II. At present no air service is operating.

<u>EXISTING FACILITIES</u>		<u>FACILITIES REQUIRED</u>	<u>Rs. in Lakhs</u>
1.	Runway 6000' x 150' LCN 16.	1) <u>IMMEDIATE</u>	
2.	Apron & Taxi Track.	a) Repairs to buildings, Road etc.	2.00
3.	Small Building.	b) N. D. B.	4.00
4.	Fencing (damaged at places)	c) Inter Tower/ R/T	5.00
5.	Water & Electricity (Limited Supply).	d) VHF R/T	2.00
		e) Telephone etc.	1.00
		f) Safety Services	6.00
ii)		<u>SUBSEQUENT</u>	
		T. B.	2.00
		Tower & Garages	1.00
		Augmentation of Power & Water.	2.00
		<hr/>	<hr/>
		Total:	25.00
		<hr/>	<hr/>



**PROPOSED EXPENDITURE**

	1st Year	2nd Year	3rd Year	4th Year
	10.00	10.00	5.00	
	<hr/>	<hr/>	<hr/>	<hr/>

SURAT (GUJARAT)

Location : 2107 N  
7245 E  
Elevation : 58'  
Owner : State Government

This aerodrome belongs to the State Government and has been developed by them.

The aerodrome has to be taken over from the State Government for development.

	<u>EXISTING FACILITIES</u>	<u>FACILITIES PROPOSED</u>	<u>Rs. in Lakhs</u>
1.	Runway 3300' x 100' F/W	<u>IMMEDIATE</u>	
2.	Fencing.	Control Tower & Garages	1.00
3.	A small Terminal Building	Power & Water	4.00
		Fencing	5.00
		N. D. B.	4.00
		Inter Tower R/T	5.00
		VHF	2.00
		Safety Services	6.00
		<u>SUBSEQUENTLY</u>	
		Exp. of Terminal Building, Residential Quarters, repairs to fencing etc.	<u>5.00</u>
		Total	32.00

PROPOSED EXPENDITURE

1st Year	2nd Year	3rd Year	4th Year
17.00	10.00	5.00	-

BIKANER (RAJASTHAN)

Location : 2804 N  
7312 E

Elevation : 780' AMSL

Owner : I. A. F.

A small airstrip existed at this location before World War II which was taken over by C. A. D. under FFI Scheme. It was handed over to IAF and developed by them in 1964-65.

FACILITIES AVAILABLE

1. Runway 9000' x 150' LCN 30
2. Apron & Taxi Track.
3. Small Building.
4. Control Tower.
5. Fencing.
6. N. D. B.
7. Inter Tower R/T.
8. V. H. F. R/T.
9. Electric & Water Supply.

FACILITIES REQUIRED

Rs. in Lakhs

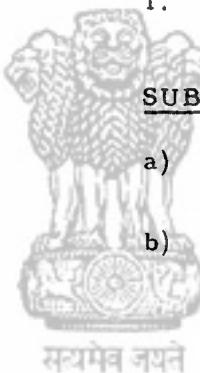
IMMEDIATE:

1. Renovation of small Building., Furniture etc. 1.00

SUBSEQUENT

- a) Terminal Building & Car Park. 2.00
- b) Augmentation of Electric & Water Supply 2.00

Total: 5.00



PROPOSED EXPENDITURE YEARWISE

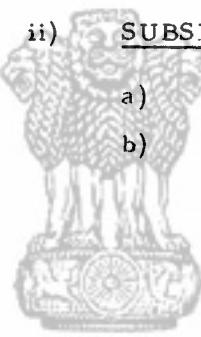
1st Year	2nd Year	3rd Year	4th Year
1.00	4.00	-	-

JAISALMER - (RAJASTHAN)

Location - 2653 N  
7052 E  
Elevation - 76' A. M. S. L.  
Owner - I. A. F. (Cat. A)

This airfield was recently constructed by I. A. F. No air service is operating at present.

	<u>EXISTING FACILITIES</u>	<u>FACILITIES REQUIRED</u>	<u>Rs. in Lakhs</u>
1.	Runway 8850' x 150' LCN 30	i) <u>IMMEDIATE:</u>	
2.	Apron & Taxy Track.	Terminal Building & Car Park, Furniture etc.	2.00
3.	A. D. B.		
4.	Point to Point R/T	ii) <u>SUBSEQUENT:</u>	
5.	V. H. F. R/T	a) Residential Quarters	2.00
6.	Fencing.	b) Augmentation of Water & Electricity	2.00
7.	Electricity & Water.		
		Total:	6.00



YEARWISE PROPOSED EXPENDITURE

	1st Year	2nd Year	3rd Year	4th Year
	2.00	4.00	-	-

**THANJAVUR - (TAMIL NADU)**

Location	-	1043 N 7906 E
Elevation	-	250'
Owner	-	D. G. C. A.

This aerodrome was developed during the World War II and taken over by the C. A. D. after the War.

**EXISTING FACILITIES**

**FACILITIES REQUIRED**

**Rs. in Lakhs**

1. Runway 07/25 - 6000' x 150'  
concrete - LCN 10
2. Tower.
3. Fencing.
4. Water & Electricity Ltd.

**IMMEDIATE:**

Terminal Building	2.00
Repairs to existing bldg., Fencing etc.	1.00
N D. E.	4.00
Inter tower R/T	5.00
V. H. F.	2.00
Telephone Links	1.00
Safety Services	6.00

**SUBSEQUENT:**

Residential Quarters,  
improvement to Water &  
Electricity.

4.00

Total: 25.00

**PROPOSED EXPENDITURE YEARWISE**

	1st Year	2nd Year	3rd Year	4th Year
	11.00	10.00	4.00	-

**UMROI (BARAPANI) (MEGHALAYA)**

Location - 2538 N  
9154 E

Elevation - 2910'

Owner - D. G. C. A.

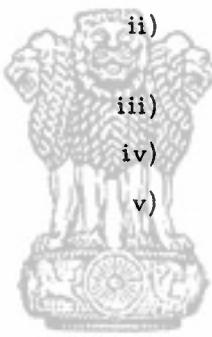
No air service is operating to this aerodrome at present.

**FACILITIES AVAILABLE:**

**FACILITIES REQUIRED**

**Rs. in Lakhs**

1.	Runway 6000' x 150' Concrete LCN - 30	<b><u>IMMEDIATE:</u></b>	
2.	Apron & Taxi Track.	i) Radio Aids - NDB	2.00
3.	Terminal Building.	ii) Inter Tower R/T (FC-10)	5.00
4.	Control Tower.	iii) VHF R/T	2.00
5.	Residential Quarters.	iv) Telephone link	1.00
6.	Water & Electricity	v) Safety Services	6.00
7.	Fencing.		
		Total:	16.00



**SUBSEQUENT**

**NIL**

**YEARWISE PROPOSED EXPENDITURE**

1st Year	2nd Year	3rd Year	4th Year
7.00	5.00	4.00	-

**AERODROMES IN CATEGORY-III**  
( To take 1 Year to 18 Months to be ready )



mysore - (KARNATAKA)

Location - 1213 N  
7639 E

Elevation - 2349'

Owner - D. G. C. A.

This aerodrome was taken over by the C. A. D. under the F. F. I. Scheme in 1950.  
No air services are operating to this station at present.

FACILITIES AVAILABLE:

FACILITIES REQUIRED:

Rs. in Lakhs

1.	Runway 4421' x 150' (F/W)	1.	Terminal Building	2.00
2.	Fencing	2.	T. W. R. / Garrages	1.00
3.	Water.	3.	Residential Quarters	2.00
4.	Electricity.	4.	N. D. B.	4.00
		5.	Inter TWR R/T	5.00
		6.	V. H. F.	2.00
		7.	Telephone	1.00
		8.	Safety Services	6.00
				<hr/>
			Total:	23.00
				<hr/>



PROPOSED EXPENDITURE YEARWISE

1st Year	2nd Year	3rd Year	4th Year
11.00	10.00	2.00	-

RAICHUR - (KARNATAKA)

Location - 1616 N  
7722 E

Elevation - 1231'

Owner - State Government

This aerodrome was constructed during World War and taken over by State Government. No air services are operating at present

	<u>FACILITIES AVAILABLE</u>	<u>FACILITIES REQUIRED</u>	<u>Rs. in Lakhs</u>
1.	Runway - 6200' x 150' Concrete	Terminal Building	2.00
		T. W. R. / Garages	1.00
		Fencing	5.00
		Residential Quarters	2.00
		Electric & Water Supply	4.00
		N. D. B.	4.00
		Inter Tower R/T	5.00
		V. H. F.	2.00
		Telephone	1.00
		Safety Services	6.00
		Total:	32.00

YEAR-WISE EXPENDITURE

1st Year	2nd Year	3rd Year	4th Year
20.00	10.00	2.00	-

RAMNAD (TAMIL NADU )

Location - 0910 N  
7858 E

Elevation - 17'

Owner - D. G. C. A.

This is one of the old landing grounds that has been existence even before World War II. No air services are operating to this place at present.

EXISTING FACILITIES

FACILITIES REQUIRED

Rs. in Lakhs

Airstrip 2385' x 150' (F /W)	1. Acquisition of land	Cost to be determined)
	2. Terminal Building	2.00
	3. TWR/Garages	1.00
	4. Fencing	5.00
	5. Residential Quarters	2.00
	6. Electricity	3.00
	7. Water	2.00
	8. NDB	4.00
	9. Inter Tower R/T	5.00
	10. Air Ground VHF	2.00
	11. Telephone	1.00
	12. Safety Services	6.00
	Total:	33.00

YEARWISE PROPOSED EXPENDITURE

1st Year	2nd Year	3rd Year	4th Year
21.00	10.00	2.00	-
+ Cost of Land to be determined)			

ABU ROAD (RAJASTHAN)

Location - 2429 N  
7249 E  
Elevation - 875 ft.  
Owner - State Government

This aerodrome belongs to the State Government and has been developed by them.

At present no air services operates to this place.

EXISTING FACILITIES

Airstrip 1860' x 150' Fair Weather

FACILITIES REQUIRED

Rs. in Lakhs

	1. Development of R/W & acquisition of land.	Cost to be determined.
2.	Terminal Buildings	2.00
3.	TWR/Garages	1.00
4.	Fencing	5.00
5.	Residential Quarters	2.00
6.	Electricity	2.00
7.	Water	2.00
8.	NDB	4.00
9.	Inter Tower R/T	5.00
10.	Air Ground VHF	2.00
11.	Telephone	1.00
12.	Safety Services	6.00
		<hr/>
		Total: 32.00
		<hr/>

YEARWISE PROPOSED EXPENDITURE

1st Year	2nd Year	3rd Year	4th Year
20.00	10.00	2.00	
+ Cost of land to be determined.			

AJMER : (RAJASTHAN)

Location - 2716 N  
7444 E  
Elevation - 1400 ft.  
Owner - State Government

This aerodrome belongs to the State Government and has been developed by them.  
This aerodrome has to be taken over from State Government for further development.

<u>EXISTING FACILITIES</u>	<u>FACILITIES PROPOSED</u>	<u>Rs. in Lakhs</u>
1. Airstrip 1500' x 1500' Fair Weather	1. Development of R/W and Acquisition of land.	Cost to be determined.
	2. Terminal Building.	2.00
	3. TWR/Garages	1.00
	4. Fencing	5.00
	5. Residential Quarters	2.00
	6. Electricity	2.00
	7. Water	2.00
	8. NDB	4.00
	9. Inter Tower R/T.	5.00
	10. Air Ground VHF	2.00
	11. Telephones	1.00
	Total	32.00



YEAR-WISE PROPOSED EXPENDITURE

1st Year	2nd Year	3rd Year	4th Year
7.00 + cost of land to be deter- mined.	10.00	11.00	4.00

DIU (GUJARAT)

Location - 2043 N  
7055 E  
Elevation - 46 Ft.  
Owner - Indian Air Force

This aerodrome is ex-portuges aerodrome now under the control of IAF. No Air Services are operating to this place at present.

EXISTING FACILITIES:

1. Runway 6500' x 150' Asphalt.

PROPOSED FACILITIES:

Rs. in Lakhs

1. Terminal Building & Car Park.	2.00
2. TWR/Garages	1.00
3. Residential Quarters	2.00
4. Electricity	2.00
5. Water	2.00
6. NDB	4.00
7. Inter Tower R/T	5.00
8. Air Ground VHF	2.00
9. Telephones	1.00
10. Safety Services	6.00

Total: 27.00

YEAR-WISE PROPOSED EXPENDITURE

1st Year	2nd Year	3rd Year	4th Year
15.00	10.00	2.00	-

ZIRO ( NEFA )

Location - 2734 N  
9350 E  
Elevation - 5145 ft.  
Owner - Army

This airstrip is under the control of Army and has to be developed. No air services operate to this place at present.

EXISTING FACILITIES

PROPOSED FACILITIES

Rs. in Lakhs

1. Airstrip 3999/90 F/W.

I. IMMEDIATE

1.	Construction of runway	15.00
2.	Power Supply	2.00
3.	Water Supply	2.00
4.	Fencing/Operational Wall	5.00
5.	Inter Tower R/T.	5.00
6.	VHF.	2.00
7.	Telephones	1.00
8.	Terminal Building & Car Park.	2.00



II. SUBSEQUENT

1.	N. D. B.	4.00
2.	Safety Services	6.00
3.	Residential Quarters	2.00

Total: 46.00

PROPOSED EXPENDITURE IN LAKHS

1st Year	2nd Year	3rd Year	4th Year
24.00	11.00	7.00	4.00

ALONG (NEFA)

Location - 2810 N  
9440 E  
Elevation - 850 ft.  
Owner - Army

The airstrip is under the control of the Army and has to be developed further. No air services operate to this place at present.

EXISTING FACILITIES

PROPOSED FACILITIES

Rs. in Lakhs

1. Runway 5400/90 Tarmac.
2. Fencing.
3. Power Supply.



I. IMMEDIATE

1. Terminal Building & Car Park 2.00
2. Control Tower 1.00
3. Water Supply 2.00
4. Inter Tower R/T 5.00
5. VHF 2.00
6. Telephones 1.00

II. SUBSEQUENT

1. NDB 4.00
2. Residential Quarters 2.00
3. Safety Services 6.00

Total: 25.00

PROPOSED EXPENDITURE IN LAKHS

1st Year	2nd Year	3rd Year	4th Year
9.00	8.00	6.00	2.00

## LUDHIANA (PUNJAB)

Location - 3052 N  
7557 E  
Elevation - 810 ft. (AMSL)  
Owner - State Government

It is Punjab Government aerodrome where a flying club is also based. In the past non-scheduled air services with Bonaza aircraft have also been operating. None operating now.

### FACILITIES AVAILABLE

### FACILITIES REQUIRED

Rs. in Lakhs

1. Runway 3726' x 150' (Concrete)  
2. Fencing



#### IMMEDIATE

1. Terminal Building 2.00  
2. Control Tower & Garages 1.00  
3. Power & Water Supply 4.00  
4. F/C 10 (Inter Tower R/T) 5.00  
5. Telephone Links 1.00

#### SUBSEQUENTLY

1. Residential Quarters 2.00  
2. NDB. (Radio Nav. Aids) 4.00  
3. Safety Services 6.00

Total: 27.00

### YEAR-WISE EXPENDITURE

1st Year	2nd Year	3rd Year	4th Year
15.00	10.00	2.00	-

JULLUNDUR (PUNJAB)

**Location** - 3117 N  
 7535 E  
**Altitude** - 775 ft. (AMSL)  
**Owner** - Army

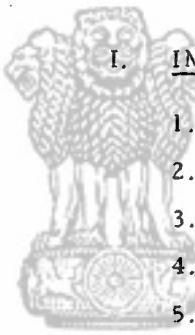
This army airfield in Punjab also houses the Flying Club as also its flying activities. No air services operate to this aerodrome. Some more land will be required to make this airfield fit for 3rd level operations.

FACILITIES AVAILABLE

FACILITIES REQUIRED

Rs. in Lakhs

1.	Landing Area 2250' 13/31 ) (PSP 1800' ) 2400' (SW/NE)	Acquisition of land	Cost to be determined
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I. IMMEDIATE

1. Terminal Building	2.00
2. Control Tower & Garages	1.00
3. Power /Water Supply	4.00
4. F/C 10 (Inter Tower R/T)	5.00
5. VHF	2.00
6. Telephone Links	1.00

II. SUBSEQUENTLY:

1. Residential Quarters	2.00
2. Safety Services	6.00
3. Radio Nav. Aids (NDB)	4.00

Total: 27.00

YEAR-WISE EXPENDITURE

1st Year	2nd Year	3rd Year	4th Year
15.00 + cost of land to be deter- mined.	10.00	2.00	-

### KARNAL (HARYANA)

Location - 2943 N  
7702 E  
Altitude - 829 ft. (AMSL)  
Owner - State Government

It is small state Government aerodrome where flying activities are restricted to small Flying Club aircraft, which belonging either to the Karnal Flying Club or clubs in other town. No air services operate to this airfield.

#### FACILITIES AVAILABLE

#### FACILITIES REQUIRED

Rs. in Lakhs

1. Runway 3600' x 900' (Fair Weather)



#### I. IMMEDIATE

1. Terminal Building	2.00
2. Control Tower & Garages	1.00
3. Power Supply	2.00
4. Water Supply	2.00
5. Fencing	5.00
6. F/C 10 (Inter Tower R/T)	5.00
7. VHS.	2.00
8. Telephone links	1.00

#### II. SUBSEQUENTLY:

1. Residential Quarters	2.00
2. NDB (Radio/Nav. aids)	4.00
3. Safety Services	6.00

Total: 32.00

#### YEAR-WISE EXPENDITURE

1st Year	2nd Year	3rd Year	4th Year
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20.00	10.00	2.00	-
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**JAGDALPUR (MADHYA PRADESH)**

Location - 1904 N  
8202 E  
Altitude - 1822' AMSL  
Owner - State Government

It is an old war time aerodrome and there is no flying activity there except an occasional M. P. Government executive aircraft operating there. No air service operates.

<u>FACILITIES AVAILABLE</u>	<u>FACILITIES REQUIRED</u>	<u>Rs. in Lakhs</u>
1. Runway 3375' x 150' Concrete	I. <u>IMMEDIATE</u>	
	1. Terminal Building	2.00
	2. Control Tower & Garages	1.00
	3. Fencing	5.00
	4. Electric/Water Supply	4.00
	5. Inter Tower R/T (F/C 10)	5.00
	6. Telephone Links	1.00
	7. VHF	2.00
	II. <u>SUBSEQUENT</u>	
	1. N. D. B. (Radio Nav. Aids).	4.00
	2. Safety Services	6.00
	3. Residential Quarters	2.00
	Total:	32.00

**YEAR-WISE EXPENDITURE**

1st Year	2nd Year	3rd Year	4th Year
20.00	10.00	2.00	-

## KANHA (MADHYA PRADESH)

Location - 2213 N  
                  8044 E  
Altitude - 2825 ft (AMSL)  
Owner - State Government

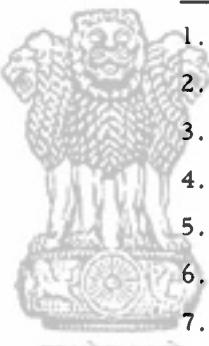
It is a state Government Kutch landing ground where no air services operates.  
Except an occassional small aircraft belonging to State Government etc.

### FACILITIES AVAILABLE

### FACILITIES REQUIRED

Rs. in Lakhs

Runway 5280' x 300'.



#### I. IMMEDIATE:

1. Terminal Building	2.00
2. Control Tower & Garages	1.00
3. Power Supply	2.00
4. Water Supply	2.00
5. Fencing	5.00
6. F/C 10 (Inter Tower R/T)	5.00
7. VHF	2.00
8. Telephone Links	1.00

#### II. SUBSEQUENTLY

1. Residential Quarters	2.00
2. NDB (Radio/Nav. Aids)	4.00
3. Safety Services	6.00

Total: 32.00

### YEARWISE EXPENDITURE

1st Year	2nd Year	3rd Year	4th Year
20.00	10.00	2.00	-

NANDED (MAHARASHTRA)

Location - 1911 N  
7719 E  
Altitude - 1260 ft (AMSL)  
Owner - State Government

It is a small aerodrome owned by the State Government near the Sikh Shrine Nander Sahib. An occasional Maharashtra Government executive aircraft, a Sikh devotee is a small charter/own aircraft or a flying club aircraft generally uses this airfield. There is no air service to this place.

FACILITIES AVAILABLE

FACILITIES REQUIRED

Rs. in Lakhs

1. Runway 4100' x 150' (Macadam)

I. IMMEDIATE:

1. Terminal Building	2.00
2. Control Tower & Garages	1.00
3. Power Supply	2.00
4. Water Supply	2.00
5. F/C 10 (Inter Tower R/T)	5.00
6. VHF	2.00
7. Telephone Links	2.00

II. SUBSEQUENTLY:

1. Residential Quarters	2.00
2. NDB (Radio/Nav. Aids)	4.00
3. Safety Services	6.00

Total: 27.00

YEAR-WISE EXPENDITURE

1st Year	2nd Year	3rd Year	4th Year
16.00	10.00	2.00	-

AMERELI (GUJARAT)

Location - 2137 N  
7113 E  
Elevation - 450'  
Owner - Gujarat State

FACILITIES AVAILABLE

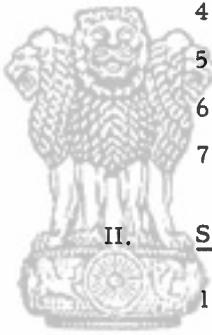
PROPOSED FACILITIES

Rs. in Lakhs

1. Airstrip 3000' x 150' F/W

I. IMMEDIATE:

1. Water Supply	2.00
2. Power Supply	2.00
3. Fencing/Operational Wall	5.00
4. Inter Tower R/T	5.00
5. V. H. F. R/T	2.00
6. Telephone	1.00
7. Terminal Building	2.00



II. SUBSEQUENT:

1. N. D. B.	4.00
2. Safety Services	6.00
3. Residential Quarters	2.00

Total: 31.00

YEAR-WISE PROPOSED EXPENDITURE

1st Year 2nd Year 3rd Year 4th Year

19.00 10.00 2.00 -

MITHAPUR (GUJARAT)

Location - 2225 N  
6902 E  
Elevation - 12'  
Owner - Tata Chemicals Ltd. Bombay

EXISTING FACILITIES

1. Air Strip 4500' x 400'  
3000' x 450'  
(Fair Weather)

PROPOSED FACILITIES

Rs. in Lakhs

I.	<u>IMMEDIATE:</u>	
1.	Power Supply	2.00
2.	Water Supply	2.00
3.	Fencing/Operational wall	5.00
4.	Inter Tower R/T	5.00
5.	VHF R/T.	2.00
6.	Telephone	1.00
7.	Terminal Building and Car Park	2.00
II.	<u>SUBSEQUENT:</u>	
1.	N. D. B.	4.00
2.	Safety Services	6.00
3.	Residential Quarters	2.00
	Total:	31.00

YEAR-WISE PROPOSED EXPENDITURE

1st Year	2nd Year	3rd Year	4th Year
19.00	10.00	2.00	-

TEZU : (NEFA)

Location - 2754 N  
9604 E  
Elevation - 600'  
Owner - Army

This air strip is under the control of Army and has to be developed. No air service operate to this place at present.

EXISTING FACILITIES:

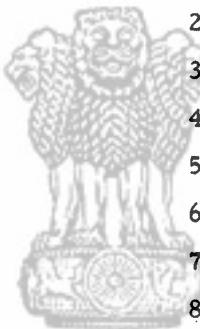
PROPOSED FACILITIES

Rs. in Lakhs

1. Airstrip 2400' x 90' (F/W)

I. IMMEDIATE:

1. Construction of R/W	15.00
2. Power Supply	2.00
3. Water Supply	2.00
4. Fencing/Operational Wall	5.00
5. Inter Tower R/T.	5.00
6. V. H. F. R/T.	2.00
7. Telephone	1.00
8. Terminal Building & Car Park	2.00



II. SUBSEQUENT:

1. N. D. B.	4.00
2. Safety Services	6.00
3. Residential Quarters	2.00

Total: 46.00

YEARWISE PROPOSED EXPENDITURE

1st Year	2nd Year	3rd Year	4th Year
24.00	11.00	7.00	4.00

DABORIJO (NEFA)

Location - 2800 N  
9411 E  
Elevation - 800 ft.  
Owner - Army

This airstrip is under the control of Army and has to be developed. No Air Services operate to this place at present.

EXISTING FACILITIES:

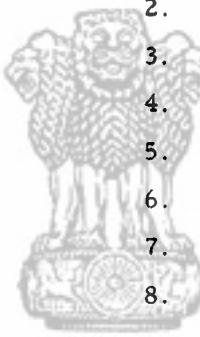
PROPOSED FACILITIES:

Rs. in Lakhs

1. Airstrip 3000' x 100' (F /W)

I. IMMEDIATE:

1. Construction of R/W	15.00
2. Power Supply	2.00
3. Water Supply	2.00
4. Fencing/Operational Wall	5.00
5. Inter Tower R/T	5.00
6. V. H. F. R/T.	2.00
7. Telephone	1.00
8. Terminal Building & Car Park.	2.00



II. SUBSEQUENT:

1. N. D. B.	4.00
2. Safety Services	6.00
3. Residential Quarters	2.00

Total: 46.00

YEARWISE PROPOSED EXPENDITURE

1st Year	2nd Year	3rd Year	4th Year
24.00	11.00	7.00	4.00

**AERODROMES IN CATEGORY-IV**  
(2-2½ Years ~~and more~~)



**PONDICHERRY: Construction of Proposed DGCA Aerodrome at Pondicherry  
(Union Territory of Pondicherry)**

No site has been proposed nor any survey carried out for selection of suitable site for construction of an aerodrome at Pondicherry. Construction of an aerodrome at Pondicherry is expected to cost around Rs. 45 lakhs. It may take nearly 2 years to construct. It is proposed to have landing strip of 2500' x 100' enclosed in a basic strip of 2900' x 400' after surveying and acquiring land. It would be necessary to provide operational wall/fencing facilities also. In order to provide adequate passenger handling facilities it would be necessary to construct a small terminal building with suitable approach road and car parking area and furnish it accordingly. Own power/water supply will also be required to meet operational/residential requirements. Construction of 7 Nos. residential Units will be necessary to meet minimum staff requirements. To provide aircraft with suitable Navigational/landing Aid installation of Non Directional Beacon is must. Provision of Air Traffic services require Air to ground VHF Radio Telephony and Ambulance, Crash Fire Tender and Operational Jeep is a must. The break up of expenditure on all the items, mentioned above is indicated below:-

	<u>Rs. in Lakhs</u>
1. Acquisition of Land	10.00
2. Development of land including cutting, filling, rolling etc. to provide for 2900' x 400' basic strip having runway of 2500' x 100'.	2.00
3. Provision of Fencing	5.00
4. Construction of Terminal Building including Car Park	2.00
5. Construction of approach road	1.00
6. Construction of A. I. Control Tower including M. T. Garages	2.00
7. Provision of electric Supply	3.00
8. Provision of water supply including O/H tank, underground Sump pumping sets etc.	2.00
9. Construction of Residential Accommodation type IV-1, Type II-2, Type I-4	2.00
10. Supply & installation of NDB.	4.00
11. Supply & Installation of A/C VHF R/T & I/T R/T.	5.00
12. Telephones	1.00
13. Fire Fighting & Safety Services	6.00
	<hr/>
	Total
	<hr/> <u>Rs. 45.00</u>

It is proposed to meet the expenditure as follows:-

(1)	1978-79	-	Rs. 15.00 Lakhs
(2)	1979-80	-	Rs. 30.00 Lakhs

**PURI: Construction of Proposed DGCA Aerodromes at Puri (Orissa)**

No site has been proposed nor any survey carried out for selection of suitable site for an aerodrome at Puri which is in Orissa State. Construction of an aerodrome at Puri is expected to cost around Rs. 45 lakhs. It may take nearly 2 years to construct. It is proposed to have landing strip of 2500' x 100' enclosed in a basic strip of 2900' x 400' after surveying and acquiring land. It would be necessary to provide operational wall/fencing facilities also. In order to provide adequate passenger handling facilities it would be necessary to construct a small terminal building with suitable approach road and car parking area and furnish it accordingly. Own power/water supply will also be required to meet operational/residential requirements. Construction of 7 No. residential units will be necessary to meet minimum staff requirements. To provide aircraft with suitable Navigational/landing Aid installation of Non Directional Beacon is a must. Provision of Air Traffic Services requires Air to ground VHF Radio Telephony and Med. frequency Station to Station Radio Telephony. To ensure adequate fire fighting and safety services provision of and Ambulance, Crash Fire Tender and Operational Jeep is a must. The break up of expenditure on all the items mentioned above is indicated below:-

	<u>Rs. in Lakhs</u>
1. Acquisition of land .	10.00
2. Development of land including cutting, filling, rolling etc. to provide for 2900' x 400' basic strip having runway of 2500' x 100'.	2.00
3. Provision of fencing	5.00
4. Construction of Terminal Building including Car Park	2.00
5. Construction of approach road.	1.00
6. Construction of A. T. Control Tower including M. T. Garages.	2.00
7. Provision of Power Supply	3.00
8. Provision of Water supply including O/H tank, underground Sump pumping sets etc.	2.00
9. Construction of Residential Accommodation type IV-1, type II-2, Type-4.	2.00
10. Supply and installation of NDB.	4.00
11. Supply & Installation of A/C VHF R/T & I/T, R/T	5.00
12. Telephones	1.00
13. Fire Fighting & Safety Services	6.00
	<hr/>
	Total Rs. 45.00

It is proposed to meet the expenditure as follows:-

(1)	1978-79	-	Rs. 15.00 Lakhs
(2)	1979-80	-	Rs. 30.00 "

**TUTICORIN: Construction of Proposed DGCA Aerodromes at Tuticorin (Tamil Nadu).**

No site has been proposed nor any survey carried out for selection of suitable site for an aerodrome at/near Tuticorin which is in Tamil Nadu State. Construction of an aerodrome at Tuticorin is expected to cost around Rs. 45 lakhs. It may take nearly 2 years to construct. It is proposed to have landing strip of 2500' x 100' enclosed in a basic strip of 2900' x 400' after surveying and acquiring land. It would be necessary to provide operational wall/fencing facilities also. In order to provide adequate passenger handling facilities it would be necessary to construct a small terminal building with suitable approach road and car parking area and furnish it accordingly. Own power/water supply will also be required to meet operational/residential requirements. Construction of 7 No. residential units will be necessary to meet minimum staff requirements. To provide aircraft with suitable Navigational/landing Aid installation of Non Directional Beacon is must. Provision of Air Traffic Services require Air to ground VHF Radio Telephony and Medium frequency Station to station Radio Telephony. To ensure adequate fire fighting and safety services provision of and Ambulance, Crash Fire Tender and Operational Jeep is a must. The break up of expenditure on all the items mentioned above is indicated below:-

	<u>Rs. in Lakhs</u>
1. Acquisition of Land	10.00
1. Acquisition of Land	2.00
2. Development of land including cutting, filling, rolling etc. to provide for 2900' x 400' basic strip having runway of 2500' x 100'.	5.00
3. Provision of fencing.	2.00
4. Construction of Terminal Building including Car Park.	1.00
5. Construction of Approach Road.	1.00
6. Construction of A. T. Control Tower including M. T. Garages	3.00
7. Provision of Power Supply	2.00
8. Provision of Water Supply including O/H tank, Underground Sump Pumping Sets etc.	2.00
9. Construction of Residential Accommodation type IV-1, Type II-2, Type I-4.	4.00
10. Supply & Installation of NDB	5.00
11. Supply & Installation of A/G VHF R/T & I/T R/T.	1.00
12. Telephones	6.00
13. Fire Fighting & Safety Services	Total Rs. 45.00

It is proposed to meet the expenditure as follows:

(1) 1978-79	-	Rs. 15.00 Lakhs
(2) 1979-80	-	Rs. 30.00 "

HUBLI: Construction of Proposed Aerodrome at Hubli.

A site for construction of a small aerodrome at Hubli was surveyed some time back and land has been acquired free. The area has been fenced by the DGCA. Construction of Aerodrome at Hubli is likely to cost nearly 30.00 lakhs and take nearly 2 years to construct. It is proposed to have landing strip of 2500' x 100' enclosed in a basic strip of 2900' x 400' after surveying and acquiring land. It would be necessary to provide wall/fencing facilities also. In order to provide adequate passenger handling facilities it would be necessary to construct a small terminal building with suitable approach road and car parking and furnish it accordingly. Own power/water supply will also be required to meet operational/residential requirements. Construction of 7 No. residential units will be necessary to meet minimum staff requirements. To provide aircraft with suitable Navigational/landing Aid installation of Non Directional Beacon is must. Provision of Air Traffic Services requires Air to ground VHF Radio Telephony and Medium Frequency Station to Station Radio Telephony. To ensure adequate fire fighting and safety services provision of and Ambulance, Crash Fire Tender and Operational Jeep is a must. The break up of expenditure on all the items mentioned above is indicated below:-

	<u>Rs. in Lakhs</u>
1. Land already acquired and airstrip to be developed to provide for 2900' x 400' basic strip having runway 2500' x 100'	1.00
2. Construction of Terminal Building including Car Park.	2.00
3. Construction of approach road.	1.00
4. Construction of Air Traffic Control Tower including M. T. Garages	2.00
5. Provision of Power Supply.	3.00
6. Provision of Water supply including O/H tank underground sump pumping sets etc.	2.00
7. Construction of residential accommodation No. 7	2.00
8. Supply and installation of NDB	4.00
9. Supply & Installation of A/G VHF R/T & I/T R/T.	5.00
10. Telephones	1.00
11. Fire Fighting & Safety Services	6.00
	<hr/>
	Total Rs. 29.00
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Expenditure of Rs. 29.00 Lakhs is proposed to be met as under:-

(1)	1978-79	-	Rs. 9.00 Lakhs
(2)	1979-80	-	Rs. 20.00 "

CALICUT : Construction of Proposed Aerodrome at Calicut (Kerala)

A site for construction of a small aerodrome at Calicut was surveyed some time back, and land has been acquired. The area has been fenced by the DGCA and approach road to the aerodrome from the city has been constructed by the State Government Authorities. Construction of aerodrome at Calicut is likely to cost nearly 40.00 Lakhs and take nearly 2 years to construct. It is proposed to have landing strip of 2500' x 100' enclosed in a basic strip of 2900' x 400' after surveying and acquiring land. It would be necessary to provide operational wall/fencing facilities also. In order to provide adequate passenger handling facilities it would be necessary to construct a small terminal building with suitable approach road and car parking area and furnish it accordingly. Own power/water supply will also be required to meet operational/residential requirements. Construction of 7 No. residential units will be necessary to meet minimum staff requirements. To provide aircraft with suitable Navigational/landing Aid installation of Non Directional Beacon is must. Provision of Air Traffic Services requires Air to ground VHF Radio Telephony and Medium Frequency Station to Station Radio Telephony. To ensure adequate fire fighting and safety services provision of and Ambulance, Crash Fire Tender and Operational Jeep is a must. The break up of expenditure on all the items mentioned above is indicated below:-

Rs. in Lakhs

1.	Land already acquired and Airstrip to be developed to provide for 2900' x 400' basic strip having runway 2500' x 100'.	12.00
2.	Construction of Terminal Building including Car Park.	2.00
3.	Construction of approach road	1.00
4.	Construction of Air Traffic Control Tower including M. T. Garages	2.00
5.	Provision of Power Supply	3.00
6.	Provision of Water Supply including O/H Tank, Underground Sump, Pumping sets etc.	2.00
7.	Construction of residential accommodation No. 7	2.00
8.	Supply and installation of NDB	4.00
9.	Supply and installation of A/G VHF R/T and I/T R/T	5.00
10.	Telephones	1.00
11.	Fire Fighting & Safety Services	6.00
		<hr/>
		Total Rs. 40.00
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Expenditure of Rs. 40.00 Lakhs is proposed to be met as under:

(1)	1978-79	-	Rs. 15.00 Lakhs
(2)	1979-80	-	Rs. 25.00 "

UKAVARATTI (LAKSHADWEEP): Construction of Proposed Aerodrome at Agaatti.

The site for construction of a small aerodrome at Agaatti near the Island of Kavarati in Lakshadweep have been surveyed sometime back. Land has not yet been acquired. Construction of aerodrome at Agaatti is likely to cost nearly Rs. 50.00 Lakhs and take nearly  $2\frac{1}{2}$  years to construct. It is proposed to have landing strip of 2500' x 100' enclosed in a basic strip of 2900' x 400' after surveying and acquiring land. It would be necessary to provide wall/fencing facilities also. In order to provide adequate passenger handling facilities it would be necessary to construct a small terminal building with suitable approach road and car parking and furnish it accordingly. Own power/water supply will also be required to meet operational/residential requirements. Construction of 7 No. residential units will be necessary to meet minimum staff requirements. To provide aircraft with suitable Navigational/Landing Aid installation of Non Directional Beacon is must. Provision of Air Traffic Services requires Air to ground VHF Radio Telephony and Medium Frequency Station to Station Radio Telephony. To ensure adequate fire fighting and safety services provision of an Ambulance, Crash Fire Tender and Operational Jeep is a must. The break up of expenditure on all the items mentioned above is indicated below:-

Rs. in Lakhs

1.	Development of land including cutting, filling, rolling etc. to provide for 2900' x 400' basic strip having runway of 2500' x 100' (Land Required)	10.00
2.	Reclamation of Land	2.00
3.	Provision of Fencing	6.00
4.	Construction of Terminal Building including Car Park	3.00
	Construction of approach road.	1.00
	Construction of Air Traffic Control Tower including M. T. Garages	2.00
	Provision of Power Supply	4.00
	Provision of Water Supply including O/H tank, underground Sump Pumping Sets etc.	3.00
	Construction of Residential Accommodation Type IV-1, Type II-2, Type I-4	3.00
	Supply and installation of NDB.	4.00
	Supply and installation of A/G VHF R/T and I/T R/T Telephones	5.00
	Fire Fighting & Safety Services	1.00
		6.00
		<hr/>
		Total Rs.
		50.00

Expenditure of Rs. 50.00 Lakhs is proposed to be met as under:

(1)	1978-79	-	Rs. 15.00 Lakhs
(2)	1979-80	-	Rs. 20.00 "
(3)	1980-81	-	Rs. 15.00 "

SIMLA: Proposed Construction of DGCA Airport at Jabbarhatti (Himachal Pradesh)

Sites around Simla and adjoining hills have been surveyed and a suitable site for construction of an aerodrome at Jabbarhatti near Simla has been selected. It is proposed to acquire land and fence it with operational wall/fence. Landing strip 3300' long and 100' wide is proposed to be prepared which will be enclosed in a basic strip having dimension 3700' x 400'. Levelling, Cutting, Grading, earth filling etc. is expected to cost around 175 lakhs. This amount though appearing to be high is likely to be spent as experience indicates that in the hilly region cutting/filling/grading costs are very high. Electric/water supply will have to be arranged for and residential/operational units constructed. It will be necessary to construct a small passenger terminal building and suitably furnish it. Construction of Air Traffic Control Block for housing all operational Units will also be necessary. In order to provide aircraft with Navigational/landing aid and also two way radio contact it would be necessary to provide a Non-Directional Beacon. Air to ground VHF Radio Telephony and station to station Medium Frequency Radio Telephony. To provide safety services like Ambulance, Crash/Fire Tender and an operational jeep would be necessary. The overall development cost is likely to be around Rs. 220.00 Lakhs. The break up of expenditure is likely to be as follows:-

	<u>Rs. in Lakhs</u>
1. Acquisition of Land	12.00
2. Development of land including cutting, filling, rolling etc. to provide for 3700' x 400' basic strip having runway of 3300' x 100'.	175.00
3. Provision of Fencing	5.00
4. Construction of Terminal Building & Car Park	2.00
5. Construction of Approach Road	1.00
6. Construction of A. T. Control Tower including M. T. Garages	2.00
7. Electric and Water Supply.	5.00
8. Construction of Residential Accommodation (7)	2.00
9. NDB, A/C VHF R/T & I/T R/T.	9.00
10. Telephone Etc.	1.00
11. Fire Fighting & Safety Services	6.00
	<hr/>
	Total Rs. 220.00
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Completion of this project is likely to take 4 years or so. It is proposed to meet the expenditure as follows:-

(1)	1978-79	-	Rs. 35.00 Lakhs
(2)	1979-80	-	Rs. 50.00 "
(3)	1980-81	-	Rs. 60.00 "
(4)	1981-82	-	Rs. 75.00 "

DEHRA DUN: Proposed use of Hindustan Aluminium Corporation Private Aerodrome at Jollygrant (DEHRADUN) (U. P.) to be Constructed.

Recently a site at Jollygrant near Dehra Dun was surveyed for construction of an aerodrome upon the proposal submitted by M/s Hindustan Aluminium Corporation and it has been found suitable for construction of a small aerodrome. This proposal is awaiting clearance from Air Headquarters. M/s. Hindustan Aluminium Corporation will be acquiring land constructing the strip and fencing it. Remaining facilities will be provided by DGCA. Electric/Water supply will be required. It will be necessary to construct a small terminal for passenger handling and suitably furnish it. A small car park and approach road will be required. In order to meet minimum staff requirements construction of 7 No. various type residential units is a must. To provide aircraft with suitable Navigational/landing aid installation of Non Directional Beacon is a must. Provision of Air Traffic Services requires Air to ground VHF Radio Telephony and Medium Frequency Station to Station Radio Telephony. To ensure adequate fire fighting and safety services provision of an Ambulance, Crash Fire Tender and Operational jeep is a must. The overall development cost will be around 28.00 lakhs. The break up of expenditure on all items mentioned above is indicated below:-

	<u>Rs. in Lakhs</u>
• Construction of terminal building including car park.	2.00
• Construction of approach road	1.00
• Construction of Air Traffic Control Tower including M/T Garages	2.00
• Provision of power supply	3.00
• Provision of water supply including O/H tank, underground sump pumping sets.	2.00
• Construction of residential Accommodation No. 7	2.00
• Supply & Installation of NDB.	4.00
• Supply and installation of A/G VHF R/T and I/T, R/T.	5.00
• Telephones	1.00
• Fire Fighting & Safety Services	6.00
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Total Rs. 28.00	<hr/>

It is expected that it will take nearly 2 to 2½ years to commission this aerodrome. The expenditure of Rs. 28.00 lakhs is proposed to be met as under:

(1)	1978-79	-	Rs. 8.00 Lakhs
(2)	1979-80	-	Rs. 20.00 "

GANGTON: Proposed Construction of DGCA Airport in Sikkim at Gangtok.

No site has been proposed nor any survey carried out for selection of suitable site for an aerodrome at /near Gangtok in Sikkim. Construction of an aerodrome at Gangtok is expected to cost nearly Rs. 220.00 Lakhs and take nearly 4 years to construct. Levelling, cutting, grading, earthfilling etc. is expected to cost Rs. 175.00 lakhs. This amount though appearing to be high is likely to be spent as experience indicates that in the hilly region such work usually costs high. It is proposed to have landing strip of 3300' x 100' enclosed in a basic strip of 3700' x 400' after surveying and acquiring land. It would be necessary to provide operational wall/fencing also. In order to provide adequate passenger handling facilities it would be necessary to construct a small terminal building with suitable approach road and car parking area and furnish it accordingly. Own power/water supply will also be required to meet operational/residential requirements. Construction of 7 No. residential units will be necessary to meet minimum staff requirements. To provide aircraft with suitable Navigational/landing Aid installation of Non Directional Beacon is must. Provision of Air Traffic Services requires Air to ground VHF Radio Telephony and Medium Frequency Station to Station Radio Telephony. To ensure adequate fire fighting and safety services provision of an Ambulance, Crash Fire Tender and Operational Jeep is a must. The break up of expenditure on all the items mentioned above is indicated below:-

	<u>Rs. in Lakhs</u>
1. Acquisition of land	12.00
2. Development of land including cutting, filling, rolling etc. to provide for 3700' x 400' basic strip having runway of 3300' x 100'	175.00
3. Provision of fencing.	5.00
4. Construction of Terminal Building including Car Park.	2.00
5. Construction of Approach Road.	1.00
6. Construction of A. T. Control Tower, including M. T. Garages	2.00
7. Provision of Power Supply.	3.00
8. Provision of water supply including O/H tank, underground sump, pumping sets etc.	2.00
9. Construction of Residential Accommodation No.7	2.00
10. Supply & installation of NDB.	4.00
11. Supply & installation of A/G VHF R/T & I/T R/T.	5.00
12. Telephones.	1.00
13. Fire Fighting & Safety Services.	6.00
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	Total Rs. 220.00

It is proposed to meet the expenditure as follows:-

(1)	1978-79	-	Rs. 25.00 Lakhs
(2)	1979-80	-	Rs. 50.00 "
(3)	1980-81	-	Rs. 60.00 "
(4)	1981-82	-	Rs. 85.00 "

## ITANAGAR: Construction of Proposed DGCA Aerodrome at Itanagar (Arunachal Pradesh)

No site has been proposed nor any survey carried out for selection of suitable site for an aerodrome at/near Itanagar which is the State Capital of Arunachal Pradesh. Construction of an aerodrome at Itanagar is expected to cost around Rs. 220.00 lakhs and take nearly 4 years to construct. It is proposed to have landing strip of 3300' x 100' enclosed in a basic strip of 3700' x 400' after surveying and acquiring land. It would be necessary to provide Operational Wall/fencing also. In order to provide adequate passenger handling facilities it would be necessary to construct a small terminal building with suitable approach road and car parking area and furnish it accordingly. Own Power/water supply will also be required to meet operational/residential requirements. Construction of 7 No. residential units will be necessary to meet minimum staff requirements. To provide aircraft with suitable Navigational/Landing Aid installation of Non Directional Beacon is must. Provision of Air Traffic Services requires Air to ground VHF Radio Telephony and Medium Frequency Station to Station Radio Telephony. To ensure adequate fire fighting and safety services provision of an Ambulance, Crash Fire Tender and Operational Jeep is a must. The break up of expenditure on all the items mentioned above is indicated below:-

	<u>Rs. in Lakhs</u>
1. Acquisition of Land.	10.00
2. Development of land including cutting, filling, rolling etc. to provide for 3700' x 400' basic strip having runway of 3300' x 100'	175.00
3. Provision of fencing.	5.00
4. Construction of Terminal Building including car park.	2.00
5. Construction of Approach Road.	1.00
6. Construction of A. T. Control Tower including M. T. Garages.	2.00
7. Provision of Power Supply.	3.00
8. Provision of water supply including O/H tank, under ground sump pumping set etc.	2.00
9. Construction of Residential Accommodation No. 7.	2.00
10. Supply & Installation of NDB,.	4.00
11. Supply & Installation of A/G VHF R/T I/T R/T.	5.00
12. Telephones.	1.00
13. Fire Fighting & Safety Services	6.00
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	Total Rs. 220.00

It is proposed to meet the expenditure as follows:-

(1)	1978-79	-	Rs. 25.00 Lakhs
(2)	1979-80	-	Rs. 50.00 "
(3)	1980-81	-	Rs. 60.00 "
(4)	1981-82	-	Rs. 85.00 "

CHAPTER - XI  
**SOURCES OF FUNDS FOR THIRD LEVEL ACTIVITIES**

To begin with, the COMMITTEE examined if the Third Level air services could be subsidised by grants from the Civil Aviation Development Funds until such time the Third Level operations become self-sustaining.

2. It will be recalled that when Civil Aviation was part of the Ministry of Transport, a meeting was held in September, 1963, in which the then Finance Minister, the Minister for Transport, and senior Officers of the Finance and Transport Ministries participated. One of the points discussed at that meeting was the development of Civil Aviation including internal air services. On this point, the following decision was then taken:-

"There is need to allocate adequate funds for the development of aviation as well as internal air services. F. M. indicated that he was agreeable in principle to make a block grant to a special fund to be created by the Department of Transport, the allocation to be made being approximately equivalent to the total excise duty collected on fuel. If necessary, even more funds could be allocated for the purpose. There would have to be a Government resolution instituting the fund and providing for a Committee on Management with the Transport Secretary as Chairman and with the Financial Adviser as one of the Members. It should not be necessary to refer individual cases to the Ministry of Finance as such grants could be made out of the special fund with the concurrence of the Financial Adviser."

3. Accordingly, the Government issued a Resolution on 27th April, 1964. Subsequently, the Civil Aviation Development Fund COMMITTEE was constituted with the Secretary to the Government of India in the Ministry of Civil Aviation as Chairman and Financial Adviser of the Ministry of Civil Aviation, Director General of Tourism and the Director General of Civil Aviation, as Members and the Deputy Secretary dealing with the Air Corporations as Member-Secretary. The Committee was to consider the various requests for operation of air services and to advise the Ministry of Civil Aviation as to:-

(a) The service to be operated by Indian Airlines on the basis of payment of subvention from the Civil Aviation Development Fund in the interest of tourist promotion or to meet the regional requirements of particular areas or for other considerations which may not justify a directive under Section 34 of Air Corporations Act, 1953.

(b) The air strips which should be constructed and the ancillary facilities that should be provided for the operation of services referred to above which could not be fitted into the general programme of Civil Aviation Department.

4. It was also stipulated that in recommending air services for operation on payment of subvention from the Civil Aviation Development Fund, the COMMITTEE would keep in view the following factors:-

- (i) No route which had broken even during the last three years would be eligible for consideration of payment of subvention in the event of the Corporation incurring a loss on the route subsequently, although it may be a tourist route.
- (ii) Routes which have met with their direct operation costs during the preceding three years will be treated as developmental routes which the Corporation should try to foster. In this view, they will also not be eligible for being considered for grant of subvention.
- (iii) Routes at present being operated under a subsidy arrangement with the Tourist Department of the Central Government will be eligible for subvention from the fund.
- (iv) New routes, the operation of which is considered necessary in the interest of tourist promotion or to meet the regional requirements of a particular area, or for other considerations which may not justify the issue of a directive under Section 34 of the Air Corporations Act, will also qualify for consideration for payment of subvention.

5. By a subsequent resolution dated the 8th July, 1965, it was made possible for payments to be made from the fund for the construction of air strips and provision of ancillary facilities for the operation of air services by the Indian Airlines which could not be fitted into the general programme of the Civil Aviation Department. It was also decided that the fund could be used for payment of subvention on account of purchase by Indian Airlines of aircraft (manufactured in India), to replace or supplement their existing fleet.

6. It is understood that a sum of Rs. 1 crore has been put into this fund on 1st April, 1978 and that the total as on 1st April, 1978 would be Rs. 3.23 crores. The representatives of Indian Airlines expressed the view that the CADF should have a greater amount than Rs. 3.23 crores as on 1st April, 1978. In support of that contention, the representatives of Indian Airlines advanced several reasons, not without merit. The fact, however, remains that the Fund presently does not exceed Rs. 3.23 crores.

7. Apart from the consideration that the Fund has a limited amount, it would seem that it has no prospects of growth since the Ministry of Tourism and Civil Aviation has informed us that a question has been raised about the utility of this Fund and it would seem that the intention possibly is that this Fund could be wound up on the ground that any assistance to the industry should come from the general revenues as in the case of other activities of the Government.

8. In any case, the Civil Aviation Development Fund, as it stands today, would not be sufficient to meet the initial or continuing financial requirements for Third Level operations. It is unlikely that the Fund could be re-activated in order to pay into the Fund what is legitimately due to it for the last several years. Faced with the possibility of the Fund being wound up, the COMMITTEE can only suggest that whatever limited amount the Fund holds should be made available for development of Third Level air services, though it is quite clear that this amount is far too small to meet even the immediate needs of Third Level air services.

9. The COMMITTEE does not share the view that a proper development of air services and particularly, a Third Level air service would be possible if reliance is to be placed on assistance from the General Revenues, because of the low priority that Civil Aviation and air services would naturally receive vis-a-vis other endeavours, such as Health, education, agriculture etc. The COMMITTEE is of the considered view that funds for the Third Level operations have to be built up from users of airline services. The Third Level air services are primarily intended to achieve socio-economic objectives, as already pointed out in Chapter II of this Report. As in the case of similar national endeavours in the socio-economic field, the funding of this Third Level project should primarily emanate from the more affluent on the larger principle that "the rich should pay for themselves and also for the poor". Even in the larger sphere of taxation and levies, it is the rich who are taxed in order to provide for the less affluent sections of the society. Viewed in this context, the funding of the Third Level project should principally, come from air travellers. The COMMITTEE, therefore, is of the view that the sources for financing this essential project could be either one of the three propositions outlined below:

- (a) At present, there is a levy on passengers departing from Bombay, Delhi, Calcutta and Madras to a destination outside India. It is proposed that an "embarkation charge" equal to 10% of the fare paid by passengers to Indian Airlines for travel on domestic services should be collected by Government and kept in a separate account reserved for financing the Third Level airline and for development of new aerodromes for Third Level air services. A uniform levy of 10% of passengers fare on the domestic sectors is proposed. About 3 million domestic passengers out of the 4.5 now travelling on the domestic air network would be subjected to a levy of 10% of their domestic fare. (The levy would not apply to tickets bought outside India or non-reven-

passengers and that is how the tentative figure of 3 million passengers have been worked out.) on the assumption that there will be a 10% increase every year in the number of domestic passengers, who will pay this levy, the amount that would be collected by such a levy would be as follows:-

	<u>Amount in crores of rupees</u>
1st year	9.00
2nd year	9.90
3rd year	10.89
4th year	11.98
5th year	13.18
6th year	14.49
7th year	15.93
8th year	17.52
9th year	19.27
10th year	21.20
 Total for the first ten years	 143.36

Calculation based on 3 million passengers: Rs. 300 as average sector fare and the charge of 10% (average Rs. 30/- per passenger)

The "embarkation charges" would be in the form of Passenger Service Fees or passengers departing from an Indian airport to another airport in India. It is proposed to provide for such a levy through a rule in the Aircraft Rules. Indian Airlines could collect this levy while issuing tickets and deposit the amount so collected in separate account.

- (b) It is estimated that the excise duty by Indian Airlines on fuel uplifts on their domestic services is approximately Rs. 10 crores per annum. If the amount paid as excise duty by Indian Airlines could be diverted into separate account and reserved for financing the Third Level project, it should be possible to build up sufficient funds over a period of about 10 years. Indeed, the funds for the project necessary for development of Third Level airline operations over the next 10 years could then be met from this Fund.
- (c) The Foreign Travel Tax at present collected by the Government from passengers going abroad by air should, as a matter of principle, be put to use for development of air transport, but the revenue derived from Foreign Travel Tax now go to the General Revenues. Only if a decision is taken to

create a separate account for Foreign Travel Tax and reserve it for development of civil aviation, the funding of the Third Level operations out of this Fund would arise.

10. The Chairman and majority of the Members of this COMMITTEE are of the view that the proposal outlined at (a) above, i. e. levy of "Embarkation Charges" equal to 10 per cent of the domestic fare from the passengers travelling by Indian Airlines and the collection of such charges as Passenger Service Fees is the most appropriate method of finding resources for Third Level air services and for development of aerodromes related to it. Representatives of the Indian Airlines, however, feel that this is not the correct method of finding resources since it takes away the elbow-room of Indian Airlines to a large extent for the future, to increase its domestic fares.

11. The Chairman of the COMMITTEE and the members from the Civil Aviation Department, Ministry of Tourism and Civil Aviation and Hindustan Aeronautics Limited feel that the proposition outlined at (a) above, for levy of an "embarkation charge" equal to 10% fare would not in any way affect the traffic moving on Indian Airline Services. According to the 1977-78 figures, Indian Airlines carried 4.5 million passengers on the domestic sectors. On a rough estimate, 25% of these passengers were tourists/business-men who came to India from other countries and purchased their tickets abroad. There may be other passengers also for whom tickets were purchased outside India. Taking these factors as also non-revenue passengers into account, it should be estimated that about 3 million passengers travel on the domestic routes who pay their fare in Indian currency. Out of these 3 million passengers, about 98% comprises of Government servants, businessmen, etc. whose fares are paid by their employers or charged to 'expense accounts' with appropriate rebates of Income Tax. Thus, only a small fraction of the air travellers travel at their own expense and therefore a levy on the domestic passengers, as proposed, would not in any way affect the traffic moving on Indian Airlines services for the simple reason that Government servants/businessmen who travel by air in the interest of the organisations employing them would continue to travel by air and the section materially affected by levy represents only a fraction of the total domestic air market.

12. The Chairman and majority of members of the COMMITTEE also felt that to rely on alternative (b) and (c) would amount to tapping general revenues. On the other hand, their intention was that funds for the establishment and future development of Third Level services must be found, without imposing a burden on the general revenues. The representatives of Indian Airlines felt that it would not be correct to rely on alternative (a) which was in a way tantamount to increasing the fares.

13. Chapter VII of this Report contains an assessment of initial expenses and recurring expenses for the Third Level air services. The COMMITTEE has selected 50 new aerodromes.

which should be served in the first phase of the development of Third Level operations. As we have already pointed out, these places have been selected on the basis of their traffic potential. The COMMITTEE therefore has reason to hope that with the passage of time over the next few years and indeed in the near future, some of the routes initiated in the Third Level air services will come to qualify for promotion to the second level and be possibly a part of Indian Airlines' normal network of domestic routes. In other words, traffic on a Third Level route should increase to such an extent that it should warrant introduction of larger aircraft on such routes. However, in place of such routes, other new routes will be developed for Third Level operations. The transfer of certain routes to the second level and the addition of new routes for Third Level operations would be a continuing process. Thus the Fund that is proposed to be created by means of introduction of Embarkation Charges is not intended only to meet the immediate needs but also to serve the future needs of Third Level operations at least for the next decade or two.

Shri Bhagwan S. Gidwani, Director General of Civil Aviation	...	Chairman
Shri A. K. Sarkar, Dy. Director General of Civil Aviation	...	Member
Shri G. D. Mathur, Dy. Managing Director, Indian Airlines	...	Member
Shri S. Ekambaram, Deputy Secretary, Ministry of Tourism & Civil Aviation	...	Member



New Delhi, 17th July 1978.

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Note:- Miss A. Mehta, ADG (Tourism) and Shri J. K. Choudhuri, Planning Manager, Indian Airlines, could not attend the concluding sessions of the COMMITTEE and the meetings of the Drafting Groups in June and July, 1978. The Chairman and other Members of the COMMITTEE are however satisfied that the Report also faithfully reflects their viewpoints, as advanced in the earlier meetings which they had attended. In order not to delay the submission of the Report beyond the allotted time frame, the COMMITTEE has had to finalise it in their absence.